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Report: Hi-Quality PFAS Wastewater Treatment
Trial Report

Date: Tuesday, 5 December 2023

To: Daniel Blair
General Manager – Waste Treatment
Services
Hi-Quality

Project: Yatala PFAS Wastewater Treatment Trial

Client: Hi-Quality

Site: 12 Byte St, Yatala QLD 4207

From: Andrew Reardon, Managing Director
Sarjaro Pty Limited

Executive Summary

Sarjaro Pty Ltd (Sarjaro) was engaged by Hi-Quality Group to design, construct, commission a PFAS Liquid Wastewater Treatment Plant (WWTP), and provide operation, maintenance, sampling and data management services for the WWTP at the Hi-Quality Yatala Waste Facility. The WWTP operated to meet site specific requirements of the Yatala Waste Facility under the conditions of the Department of Environment and Science (DES) Environmental Authority EA0002264 (EA) (**Appendix A**). DES visited the site in February 2023 to conduct a compliance audit during the trial, and no outcomes were found during the audit. The purpose of this report is to outline the requirements within the EA, the compliance and performance of the current trial wastewater treatment plant and any recommendations for future treatment of PFAS at the Hi-Quality Yatala Waste Facility.

The WWTP had multiple treatment stages to remove PFAS and co-occurring contaminants from the wastewater, in accordance with the license. The specific treatment method included: water storage, primary treatment with powdered carbon and zeolite dosing, coagulation, flocculation, pH adjustment and settlement, and clarification with addition of powdered activated carbon and zeolite along with filtration through zeolites, activated carbons and anion exchange resin.

The WWTP was commissioned from the 14th of November to the 20th of November 2022. The commissioning process included hydraulic commissioning, bench trials and performance commissioning. Analytical results for performance commissioning (Batch 001) demonstrated compliant with the EA PFAS Wastewater Treatment Trial Wastewater Quality Characteristics and operations commenced. During the one-year operational period for this report from the 21st of November 2022 to the 22nd of November 2023 untreated source liquid waste and treated liquid waste was sampled for compliance and monitoring listed within T14, T17 and G13. Within this time a total of fifteen batches of water (up to 50,000 litres) were treated through the Hi-Quality Yatala PFAS WTP.

Untreated water results for Sum of PFAS ranged from 0.572 ug/L to 6.71 ug/L, average 3.44 ug/L. All final treated water results were below the EA *Table 4 - Treated wastewater release quality characteristic limits* (Table 5) (trace level LOR, <0.001 - <0.005 ug/L), confirming the WWTP was effective at removing PFAS from the wastewater (Figure 2). There were 5 occasions across the one-year trial period where the treated discharge water PFBA result was elevated, ranging from 0.013 ug/L - 0.094 ug/L (Section 2.17(e), Table 4). These batches were retreated through the WWTP and sampled again, with all retreat results meeting EA limits.

Sarjaro tested for co-occurring contaminants in accordance with the EA conditions and completed additional monitoring across the process flow. The primary co-occurring contaminants present were total suspended solids (average = 224 mg/L), heavy metals (average = 3.15 mg/L) and hydrocarbons (average = 9.36 mg/L) (Table 8). The primary removed 55% of the total suspended solids, 64% of the heavy metals and 44% of the light hydrocarbon fractions. In addition, the upfront treatment reduced both PFAS and precursors by 61% and 89% respectively (Figure 3, Table 9, Table 10). Contaminants were reduced further through the zeolite and activated carbons filters (tertiary water) with an 74% - 99% reduction. At the treated discharge water sample point, all contaminants were reduced by 83% or higher, with PFAS and precursors being reduced by 99% (Figure 3, Table 9, Table 10).

The findings from the trial indicated that the WWTP operated effectively to remove PFAS and the co-contaminants from the wastewater, meeting the EA criteria for discharge. Recommendations were made to improve the performance of the system through increasing storage and pretreatment, implementing additional hydrocarbon removal stages and adding multiple stage primary treatment to target complex waste streams or manage multiple influents at once.

The Hi-Quality PFAS Treatment Trial has demonstrated the capability of the current WWTP in removing PFAS from a variety of waste streams. Analytical data generated across the past twelve months of the trial within this report demonstrates compliance to the limits and monitoring requirements of the EA.

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Document Quality

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Prepared By: Leah Kaslar (BSc, MBA), Sarjaro Remediation Projects, Technical Analyst

Reviewed by: Chloe Smith (BSc), Sarjaro Research Scientist, Innovation Manager

Peer Reviewed by: Denton Maudlin (BSc (Hon), Professional Engineer, SQP), Principal Consultant

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1 Overview

1.1 Background

Sarjaro Pty Ltd (Sarjaro) was engaged by Hi-Quality Group to design, construct, commission a PFAS Liquid Wastewater Treatment Plant (WWTP), and provide operation, maintenance, sampling and data management services for the WWTP at the Hi-Quality Yatala Waste Facility.

The WWTP is currently operating to meet site specific requirements of the Yatala Waste Facility under the conditions of the Environmental Authority EA0002264 (EA) (**Appendix A – Environmental Authority (EA) EA0002264**), which was granted to Hi-Quality by QLD Department of Environment and Science (DES). The EA has provision for a PFAS Treatment Trial to assess validity and plant performance for PFAS removal onsite over a period of no more than 24 months.

The EA lists a number of trial conditions which are applied to both soil and wastewater containing PFAS. This report will discuss only the conditions applicable to wastewater as the soil trial is being completed and reported by others.

In addition to complying with the PFAS Treatment Trial conditions in the EA, the current wastewater treatment plant operations aim to determine and demonstrate performance for PFAS removal from a variety of liquid waste streams and determine the best practice methodology for liquid waste management.

DES attended site in February 2023 to conduct a compliance audit of the site, including the PFAS Trial WWTP. There were no outcomes found resulting from the audit conducted and the trial continued as was.

Following 12 months of operation, Sarjaro provide Hi-Quality with this independent report written and reviewed by an appropriately qualified person and peer reviewed by a suitable qualified third-party person to demonstrate the findings, conclusions, and recommendations of the trial. The independent report for the PFAS Wastewater Treatment Trial is intended to support the Hi-Quality application to QLD DES for a permanent EA to treat a variety of contaminated liquid waste streams containing PFAS. This report is required under condition T20 within the EA.

The findings from the trial will also influence the design of the Stage 2 PFAS WWTP (under EA application) providing new and improved processes to separate PFAS from complex contaminated liquid waste streams that are received at the facility.

Hi-Quality intend to commercialise PFAS wastewater treatment (M270) including various co-contaminants present within such waste streams to provide a proven best practice, sustainable, waste management pathway for industry.

1.2 Purpose

The purpose of this report is to outline the requirements within the EA, the compliance and performance of the current trial wastewater treatment plant and any recommendations for future treatment of PFAS at the Hi-Quality Yatala Waste Facility.

Specifically, this report will detail the:

- Trial conditions under the EA in relation to wastewater treatment
- Methodology of treatment and sampling
- Data quality objectives
- Analytical results
- Quality control / assurance and Data quality indicators
- Findings of the trial

- Conclusions, and
- Recommendations to improve the WWTP process

1.3 Objectives

The remediation objective for the PFAS WWTP is to treat contaminated liquid waste received at the facility in accordance with the conditions under the EA.

The objective of this report is to demonstrate compliance for the wastewater treatment activities carried out as part of the PFAS Wastewater Treatment Trial against the conditions of the PFAS Trial Conditions within the EA.

PFAS Wastewater Treatment Trial conditions listed within the EA have been addressed within this report by Sarjaro. The sludge and soil PFAS treatment works were completed by others and will be reported by others.

1.4 Limitations

Sarjaro and the suitably qualified third-party person, has prepared this document for a specific purpose for the sole use of the Client. This document should not be relied upon by any party without the prior written consent of Sarjaro. Any third party who may rely on this document does so without the responsibility or duty of Sarjaro. Any assumptions within this document are made based on the professional experience of Sarjaro and in accordance with the Client's description of the project and their requirements. This document may rely upon information from the Client and third parties, some of which may not have been verified. This document may be transmitted, copied, or distributed only in its entirety when considering the above conditions.

1.5 Technical Framework

The works were undertaken in accordance with the requirements of the following legislative, guidelines and standards:

National:

- National Environment Protection Council (NEPC) 1999 Amended, National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1);
- Heads of EPAs Australia and New Zealand (HEPA) 2020, PFAS National Environmental Management Plan 2.0, January 2020; and
- Australian Standard AS5667.1 1998, Wastewater quality – sampling. Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.

State:

- Queensland Environmental Protection Act 1994.
- Queensland Environmental Protection Regulation (2019).
- Queensland Environmental Protection (Wastewater) Policy (2009).
- Queensland Environmental Protection (Wastewater and Wetland Biodiversity) Policy 2019 (EPP (Wastewater and Wetland Biodiversity)); and
- Queensland DEHP 2013, Monitoring and Sampling Manual 2009, Version 2, July 2013.

Site

- Queensland Department of Science Environmental Authority EA00002264 (EA).
- Sarjaro Environmental Management Plan
- Sarjaro WWTP Operating Manual
- Sarjaro WWTP Site Specific SWMS, HAZOP & Risk Assessment/s

1.6 Environmental Authority

The EA for the Hi-Quality Waste Management Facility at Yatala includes PFAS Treatment Trial Conditions which detail the specific requirements for undertaking the trial. This includes requirements for data collection for waste, wastewater sampling and analysis, data reporting, treatment system processes and wastewater quality release limits. The treated water release quality characteristic limits include quality characteristics for 28 PFAS for liquid waste with 3 additional PFAS where wastes may contain hydraulic fluid and landfill leachates.

1.7 Sampling, Analysis and Quality

Sampling, analysis and quality assurance / quality control was undertaken in accordance with Schedule B2 of the National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 2011) and the PFAS National Environmental Management Plan 2.0 (Heads of EPA Australia and New Zealand, 2020). The sampling analysis and quality measures taken for the PFAS Wastewater Treatment Trial data collection, analysis and management will be discussed further in Sections 4 and 6.

2 Trial Conditions & Compliance

This section will detail compliance with the EA PFAS Wastewater Treatment Trial conditions relating to wastewater treatment. The condition will be detailed at the start of each section in blue text and details of compliance will be discussed below the condition in black text.

Supporting information including analytical results and findings will be presented in summary using tables and graphs with detailed reports in Sections 5 and 7, as well as supporting information within the appendices.

2.1 T1 Condition

A PFAS treatment trial for PFAS contaminated wastes and residues may be undertaken limited to the following waste types and treatment processes:

- a) Stabilisation and immobilisation of PFAS contaminated soil and the solid component of sludge waste using chemical fixation reagent RemBind; and
- b) Separation of PFAS from PFAS contaminated liquid waste, including ground wastewater, surface wastewater, and wastewater using a wastewater treatment system as described in T2.

This report describes a PFAS treatment trial for PFAS contaminated wastes and residues using T1.b) waste types and treatment processes described as 'separation of PFAS from PFAS contaminated liquid waste including groundwater, surface wastewater and wastewater using a wastewater treatment system as described in T2.

T1.a) refers to stabilisation and immobilisation of PFAS contaminated soil and the solid component of sludge waste using chemical fixation reagent RemBind which was not undertaken by Sarjaro. Activities in reference to T1.a) will be described in the report completed by others.

2.2 T2 Condition

The WWTP includes the following stages of treatment.

- a) Filtration; and
Is included within the Secondary and Tertiary Treatment Stages (Table 1)
- b) Flocculation / coagulation; and
Is included within the Primary Treatment Stage (Table 1)

c) **Chlorination (if necessary)**

Is not necessary and is not included.

d) **pH adjustment; and**

Is included within the Primary Treatment Stage (Table 1)

e) **Multistage PFAS removal is included using adsorption with powdered carbon, granular activated carbon and ion exchange resin.**

Is included within the Quaternary Treatment Stage (Table 1)

The process flow of the WWTP is compliant with T2 and includes the stages of treatment detailed in Table 1.

Table 1: Wastewater Treatment Plant Treatment Stages

Wastewater Treatment Stage	Description
Untreated Wastewater Storage	Storage tanks used to store untreated wastewater.
Primary Treatment Solids Removal Organics Removal including PFAS	Chemical Treatment with anionic and cationic coagulation, flocculation, oxidation, pH adjustment, settlement, and clarification with addition of powdered activated carbon and zeolite
Secondary Treatment Solids Removal Heavy Metals Removal	Pelletised Coal GAC Filtration – Physical removal stage for any carryover flocs or solids Zeolite Filtration - Volcanic Clinoptilolite Zeolite (VCZ) mechanical and ion exchange media filtration
Tertiary Treatment Organics Removal including PFAS	Coal GAC Filtration – Adsorption of large molecule organics
Quaternary Treatment Polishing stage for organics removal including PFAS	Coconut GAC Filtration – Broadscale adsorption of organics due to micro, meso and macro pores Ion Exchange Resin – Weak Base Anion (WBA) Exchange Resin (IX) media filtration – Polishing stage for PFAS removal Ultra High Activity GAC media filtration – Polishing stage for PFAS removal
Treated Wastewater Storage	Designated tanks capture treated wastewater to be held before analytical results are received permitting discharge to trade waste

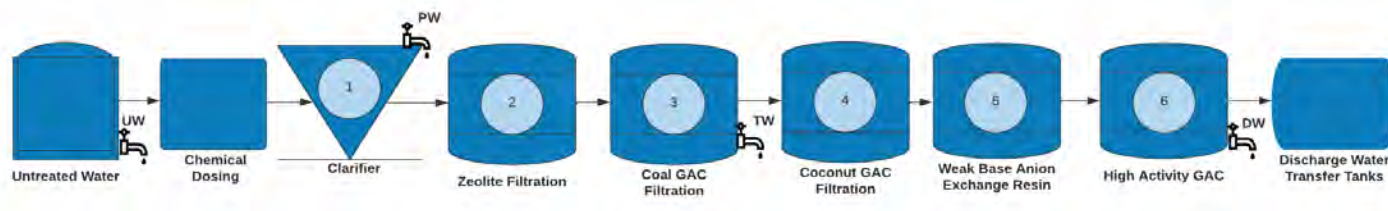


Figure 1: Process flow and sampling locations for PFAS removal stages

2.3 T3 Condition

PFAS contaminated sludge may be treated under the PFAS treatment trial provided:

- The sludge undergoes a process to separate the material into solid and liquid components upon acceptance; and

- b) Both the solid and liquid components comply with the acceptance limits for solid and liquid waste in the PFAS treatment trial conditions; and
- c) The liquid component is treated in accordance with conditions relating to PFAS contaminated liquid waste; and
- d) The solid component is treated in accordance with conditions relating to PFAS contaminated soils and the solid component of sludge.

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others. Sarjaro were advised that this trial was completed with solid waste rather than sludge and therefore no water required treatment. Therefore, T3 did not produce water that is required for treatment and reporting in this report.

2.4 T4 Condition

Waste containing PFAS is not subject to any evaporative, thermal or other process or management likely to release PFAS to the atmosphere during the WWTP process.

The liquid waste is stored in sealed tanks within the waste management facility across all stages of storage and process flow.

2.5 T5 Condition

The duration of the trial must not exceed twenty-four (24) consecutive calendar months, after which the activity of treating PFAS contaminated wastes and residues must cease.

The trial commenced on the 21st of November 2022 and has been undertaken for a period of twelve (12) consecutive calendar months.

2.6 T6 Condition

The administering authority must be notified in writing of the date of commencement of the trial and within 24 hours of the trial commencing.

Hi-Quality Group notified QLD DES on the 21st November 2022 in writing to advise that the trial commenced on the 21st November 2022.

Supporting letter included in **Appendix B – Trial Notification Letter**

2.7 T7 Condition

Stabilisation and immobilisation of PFAS contaminated soil and the solid component of sludge waste must occur within a dedicated area of building 3 as shown in *Appendix 2 Site Plan*.

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others.

2.8 T8 Condition

PFAS contaminated liquid waste must only be treated in a dedicated PFAS wastewater treatment system in Building 2 as shown in *Appendix 2 Site Plan*.

PFAS contaminated liquid waste was treated within the dedicated PFAS wastewater treatment system in Building 2 shown on Appendix 2 Site Plan.

2.9 T9 Condition

PFAS contaminated soil and the solid component of sludge waste treated on site must not contain more than:

- a) 5 mg/L of total PFAS compounds measured using a leach solution of pH 7 under Australian Standard Leaching Procedure (ASLP) with paired standard analysis and Total Oxidisable Precursor Assay (TOPA); or
- b) 50 mg/kg total PFAS Compounds.

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others.

2.10 T10 Condition

PFAS contaminated liquid waste treated on site must not contain more than 0.05 mg/L total PFAS Compounds.

PFAS contaminated liquid waste was sampled and analysed for PFAS Extended Suite (30 PFAS) by the primary laboratory Eurofins Mgt (NATA accredited) to determine whether levels were lower than 0.05 mg/L (50 ug/L) total PFAS prior to treatment. Quality control analysis was undertaken by ALS to verify the data.

The range of PFAS contaminated waste treated for Batches 1-15 was from 0.572 – 6.71 ug/L (Table 2). Therefore, all PFAS contaminated waste treated onsite did not contain more than 50 ug/L total PFAS Compounds.

Table 2: Total PFAS minimum, average and maximum results for Batches 1-15

Analyte Sum	Unit	Min	Avg	Max
Sum of PFASs (n=30)	µg/L	0.572	3.44	6.71

Values in Table 2 were determined from the full analytical results spreadsheet and Certificates of Analysis (COAs) displayed in **Appendix F – Analytical Results** and **Appendix G – Certificates of Analysis**.

2.11 T11 Condition

All PFAS contaminated waste must be clearly labelled to identify that it contains PFAS contaminants.

Hi-Quality have a waste management system which includes a labelling scheme for all PFAS contaminated waste to identify that it contains PFAS contaminants when it enters the facility and all liquid waste used in the WWTP trial was labelled in accordance with the T11 Condition and Hi-Quality's waste management system.

2.12 T12 Condition

All PFAS contaminated waste must be loaded, unloaded, treated or stored on a concrete surface that is:

- a) Treated and maintained to ensure an impervious barrier between the PFAS contaminants and the concrete at all times; and
- b) Bunded to contain any potential seepage or spillage.

Packaged (e.g. IBCs) and solid PFAS contaminated waste were unloaded and stored on an epoxy coated concrete surface in Shed 3. Bulk liquid and sludge PFAS contaminated waste were unloaded and stored in

epoxy coated concrete pits in Shed 1. The liquid waste was then transferred to designated untreated storage tanks within the PFAS WWTP area, which is located on a sealed epoxy coated bunded area.

Shed 3 and the PFAS WWTP area are specifically bunded, as well as the overall site is bunded.

2.13 T13 Condition

All PFAS contaminated soil and solid components of sludge must be mixed using a pugmill or alternative effective physical mixing device operated to achieve:

- a) Size reduction and/or screening of the solid waste to achieve consistency; and
- b) Full and consistent mixing of the chemical fixation reagent (RemBind) stabilisation product with the soil and/or solid waste particles.

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others.

2.14 T14 Condition

All PFAS contaminated waste accepted for treatment must be accompanied by the following:

- a) Safety data sheets and product information for any products suspected of creating the PFAS contamination; and
- b) Details on how the waste was generated; and

Full details of safety data sheets, waste types, waste origins, how waste was generated, relating batch number and treatment volumes were recorded on a spreadsheet which is displayed in **Appendix D – PFAS Waste Source and Treated Batch Details.**

Safety Data Sheets are included in **Appendix E – PFAS Waste Safety Data Sheets.**

- c) Analysis results for qualities or co-occurring contaminants that may affect the treatment process including:
 - i) For soils and solids: Analysis results for pH, alkalinity, ammonium, total recoverable hydrocarbons, fraction of organic carbon, cation exchange capacity, particle size to Australian Standard AS 1289, dry density and moisture content to Australian Standard AS1289, and acid sulfate soil screening to Australian Standard AS 4969 and as per requirements of the Queensland Acid Sulfate Soil Management Guideline; and

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others.

- ii) For liquids: Analysis results for total recoverable hydrocarbons, total organic carbon, chemical oxygen demand, biochemical oxygen demand, total nitrogen, chlorinated hydrocarbons, major anions and cations, pH, suspended solids, chlorophyll 'a' (surface wastewaters only) and dissolved iron and aluminium for any wastewaters obtained from groundwater or surface wastewater potentially affected by acid sulfate soil; and

All PFAS contaminated waste accepted for treatment was analysed for qualities or co-occurring contaminants that may affect the treatment process including:

- Total recoverable hydrocarbons, total organic carbon, chemical oxygen demand, biochemical oxygen demand, nutrients, chlorinated hydrocarbons, major anions and cations, pH, suspended solids.
- Chlorophyll a was not tested for as surface wastewaters were not received.

- Dissolved iron and aluminium were not tested for as there was no groundwater or surface wastewater received that was potentially affected by acid sulfate soil.

iii) where there are known or potentially other co-occurring contaminants suspected to be present that may adversely affect the treatment process; those co-occurring contaminants.

Sarjaro tested for other co-occurring contaminants suspected to be present that may adversely affect the treatment process following major treatment stages.

The main co-occurring contaminant that occurs within PFAS contaminated waste streams that affects PFAS removal is hydrocarbons. Other analytes relative to treatment processes include Anions and Cations, Alkalinity, pH, Chlorides and Sulphates, Metals, Total Suspended Solids (TSS), Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Total Organic Carbon (TOC)/Dissolved Organic Carbon (DOC).

In addition to complying with T14 Condition iii Sarjaro also undertook monitoring of intermediate sample points within the process post Primary Water (PW), post Tertiary Water (TW) and post Quaternary Water (DW) to understand removal of key co-occurring contaminants across the process flow.

Results for co-occurring contaminants are recorded in the 'Analytical Results' spreadsheet. A summary of the results is displayed in Section 5 Analytical Results and discussed in Section 7 Findings of this report. Full analytical results spreadsheet and Certificates of Analysis (COAs) are displayed in **Appendix F – Analytical Results** and **Appendix G – Certificates of Analysis**.

2.15 T15 Condition

Where the proportion of organic fluorine mass in the sum of PFAS standard analysis and TOPA explains less than 60 percent of the measured TOF mass, additional analytical determinations to investigate the potential source of unexplained TOF mass must be undertaken using techniques commercially available¹.

**Note: This is not required where the waste has previously been characterised by this method.*

¹ Examples include high resolution mass spectrometry and relevant extended quantification suites.

There were no circumstances where the proportion of organic fluorine mass in the sum of PFAS standard analysis and TOPA explained less than 60 percent of the measured TOF mass in the source wastewater or treated water.

Table 3: Total Organic Fluorine / Adsorbable Organofluorine, TOPA and Sum of PFAS Average Results

Analytes	Units	Untreated Water	Primary Treatment	Tertiary Treatment	Discharge / Treated Water
Adsorbable Organofluorine (AOF)*	mg/L	< 5	< 5	< 0.05	< 0.05
TOPA Sum of PFASs (n=30)*	µg/L	14	1.36	0.21	< 0.10
Sum of PFASs (no=30)*	µg/L	3.44	1.35	0.07	< 0.005

The laboratory analysed for Total Organofluorine (TOF) and Adsorbable Organofluorine (AOF) on different reports. The laboratory advised that both TOF and AOF are the exact same method, with the only differing factor being the limit of reporting (LOR). TOF LOR = <5 mg/L and AOF LOR = <0.05 mg/L. Across the untreated (UW) and treated discharge water (DW) samples, all TOF and AOF results were non-detect,

implying that the primary contaminants making up the organo-fluorine content of the water was PFAS and its precursors.

A full summary of AOF/TOF, TOPA and Sum of PFAS results are in **Appendix C – AOF / TOF, TOPA & Sum of PFAS Results**.

2.16 T16 Condition

The trial of stabilisation and immobilisation of PFAS contaminated soil and solid components of sludge waste using chemical fixation reagent RemBind must:

- a) Incorporate a measurement that confirms the effectiveness of mixing of the waste/soil with the chemical fixation reagent (RemBind); and
- b) Assess the effectiveness of the chemical fixation reagent (RemBind) in reducing the long-term leachability of the treated waste and soil; and
- c) Record full details of the trial including waste type, waste origin, characterisation results for the waste/soil, chemical fixation reagent (RemBind) dose rate, mixing process and fixation duration; and
- d) Avoid dilution of the PFAS contaminated waste/soil with other soil, substances, media or wastes as a means of achieving waste acceptance criteria, prior to or following the treatment; and
- e) Analyse the fixated waste/soil material using the modified multiple extraction procedure that incorporates all the PFAS analysis techniques used to characterise the pre-treated waste for PFAS and total organic fluorine; and
- f) Evaluate and report the fixation efficiency for the treated PFAS contaminated waste/soil; and
- g) Evaluate and report compliance of each sequential leach with:
 - i. The landfill acceptance criteria prescribed in Table 7 of the PFAS National Environmental Management Plan dated May 2020, or any later version; and
 - ii. The landfill acceptance criteria for the landfill(s) intended to accept the treated material; and
 - iii. Keep records of the disposal of all treated wastes, treated soils and any residues.

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others.

2.17 T17 Condition

The treatment trial of PFAS contaminated liquid waste using a wastewater treatment system must:

- a) Assess the effectiveness of the wastewater treatment plant in removing and reducing the concentrations of PFAS contaminants in treated liquid waste;

The wastewater treatment plant effectiveness was assessed by data analysis of untreated water, process wastewater and treated discharge water. PFAS within all treated batches was reduced to levels in compliance with the EA during treatment.

The primary treatment process of the wastewater treatment plant was inadequate for the types of complex liquid waste received into the plant as hydrocarbons were entering the filtration stages in higher than anticipated concentrations. The automatic dosing system that was set up to add coagulant, flocculant and adjust pH was insufficient for the volumes of reagents required. Manual dosing was completed when complex waste streams demanded higher doses to improve primary system processes. This improved the process however there was still carryover of hydrocarbons.

When hydrocarbons breakthrough in high concentrations from the primary system into the later filtration stages (secondary, tertiary and quaternary) the adsorptive capacity of the filters for PFAS removal is reduced as the media becomes loaded with co-occurring contaminants.

This can cause breakthrough of low level PFAS within the fully treated discharge water. This occurred in Batches 4, 6, 7, 9, 10. These batches were reprocessed and retested until compliance was achieved.

It is recommended that improvements be made to the primary treatment stage for future treatment of complex liquid waste streams. This will be discussed further within **Sections 5, 7 and 8**.

- b) Record full details of the treatment trial including waste types, waste origins, characterisation results for each waste, any breakthrough of PFAS through filtration/adsorption steps and the overall treatment process;

Full details of waste types, waste origins, relating batch number and treatment volumes were recorded on a spreadsheet displayed in **Appendix D – PFAS Waste Source and Treated Batch Details**.

Characterisation of results for each waste, any breakthrough of PFAS through filtration stages and results for the overall treatment process were recorded in our 'Analytical Results' spreadsheet. The process flow and sampling locations for PFAS removal stages are indicated in Figure 1 within Section 2.2.

A summary of the results is displayed in Section 5 Analytical Results and discussed in Section 7 Findings of this report. Full analytical results spreadsheet and Certificates of Analysis (COAs) are displayed in **Appendix F – Analytical Results and Appendix G – Certificates of Analysis**.

- c) Analyse each batch of up to a maximum of 50 kilolitres of treated liquid using all the PFAS analysis techniques in condition G13 and T10 used to characterise the pre-treated liquid waste; and

Each batch (up to a maximum of 50 kilolitres of treated liquid) was analysed using all the PFAS analysis techniques in conditions T10.

The initial monitoring sample plan design did not include G13 due to information error and therefore TOF and TOPA was not tested for batches 1-10. During a review of data monitoring outcomes against the EA in July 2023 it was identified that this was not being accounted for. This was then rectified, and a data set has been collected for rounds 11-15. Based on prior project experience and consistency in the treatment process across the duration of this project is considered that this data set is representative of overall treatment outcomes.

Analysis by NATA accredited laboratory for T10 and G13 are recorded within the 'Analytical Results' spreadsheet. A summary of the results is displayed in Section 5 Analytical Results and discussed in Section 7 Findings of this report. Full results spreadsheet and Certificates of Analyses are displayed in **Appendix F – Analytical Results and Appendix G – Certificates of Analysis**.

- d) Compare analysis results for the treated liquid waste quality to the treated liquid waste limits in Table 4 - Treated wastewater release quality characteristic limits; and

Analysis by NATA accredited laboratory was completed for the treated liquid waste quality and demonstrated compliance with Table 4 - Treated wastewater release quality characteristic limits (Table 5). These results were recorded within the 'Analytical Results' spreadsheet. A summary of the results is displayed in Section 5 Analytical Results and discussed in Section 7 Findings of this report. Full results spreadsheet and Certificates of Analyses are displayed in **Appendix F – Analytical Results and Appendix G – Certificates of Analysis**.

- e) If the treated liquid waste does not comply with the treated liquid waste limits in Table 4, carry out further treatment and monitoring necessary to comply with limits; and

There were 5 batches out of the 15 batches in which the treated liquid waste did not comply with the treated liquid waste limits in Table 5 on the first pass. These 5 batches were retreated through the WWTP system and then sampled for compliance. The retreated samples had the identifier of 'R' after the sample

number. On all occasions, the retreated results confirmed successful treatment and compliance with EA limits. The 5 occasions which required retreatment are detailed in Table 4 below:

Table 4: Retreatment Results

			Analyte		PFBA	PFPeA
			Units		µg/L	µg/L
			EA Max Limit		< 0.005	< 0.001
Source	Report	Sample ID	Date			
Southport Light Rail	950742	SJO6_DW004	15/12/2022		0.018	< 0.001
	955229	SJO6_DW004R	11/01/2023		< 0.005	< 0.001
Ampol Lytton	967207	SJO6_DW006	27/02/2023		0.041	< 0.001
	968096	SJO6_DW006R	1/03/2023		< 0.005	< 0.001
Ampol Lytton	970913	SJO6_DW007	9/03/2023		0.013	< 0.001
	972126	SJO6_DW007R	15/03/2023		< 0.005	< 0.001
Southport Light Rail, Bowen Hills, Coomera Connector, Brisbane Airport	999077	SJO6_DW009	6/07/2023		0.053	0.002
	1006678	SJO6_DW009R	11/07/2023		< 0.005	< 0.001
Brisbane Airport	1009887	SJO6_DW010	21/07/2023		0.094	< 0.001
	1011633	SJO6_DW010R	27/07/2023		< 0.005	< 0.001

PFBA was the only PFAS analyte above criteria for these samples as well as PFPeA which was also above criteria for Batch 009. PFBA is a short-chain PFAS (4-carbon chain length) which has found to be the most mobile within water treatment plants and the first indicator of breakthrough between filters. In previous works, Sarjaro have used PFBA as an indicator analyte to determine when chemical activation techniques should be implemented as a preventative measure to improve treatment outcomes to achieve criteria for long chain PFAS.

Sarjaro increased the volume of filtration media within the final polishing filter vessels because there was sufficient head room following Round 010. This was completed to increase the bed depth of the filtration media and therefore increase the empty bed contact time. This improved recovery of PFAS in the final treatment stage, particularly for the short chain PFAS (i.e., PFBA to < 0.005 ug/L) whilst the remaining filtration media still had capacity to capture the longer chain PFAS analytes. The additional filtration media proved to be successful for the remaining batches treated.

For a prior project in Queensland, a percentile-based criteria was implemented to account for the low-level breakthrough that can occur with the short chain PFAS (e.g., PFBA). This approach reduced the volume of activated carbon that had to be replaced and disposed of. Production of activated carbon media is an energy intensive process and disposal, or destruction of this media also has an environmental toll and detracts from the sustainability of the technology. This percentile-based approach allowed for chemical reactivation to use filtration media as a resource rather than a once off disposable item. This approach may be a more environmentally friendly outcome considering the overall impact of a water treatment project.

This percentile-based criteria takes into account best practice technology, the environmental cost of remediation products, minimising waste disposal/destruction and finds a solution-based criteria.

f) Keep records of all monitoring of treated wastewater quality.

Records are kept of all monitoring of treated wastewater quality and are detailed within spreadsheet 'Analytical Results'. A summary of the results is displayed in Section 5 Analytical Results and discussed in Section 7 Findings of this report. Full results spreadsheet and Certificates of Analyses are displayed in **Appendix F – Analytical Results and Appendix G – Certificates of Analysis**.

2.18 T18 Condition

The release of treated wastewater must only occur to sewer and must comply with the release limits for all quality characteristics in 'Table 4 - Treated wastewater release quality characteristic limits' (Table 5(EA) below).

Table 5: 'Table 4 - EA Wastewater Quality Characteristics Hi-Quality Yatala Waste Management Facility'

Analytes	Release Limit µg/L	Limit Type
Perfluoroalkyl sulfonic acids		
Perfluorobutanesulfonic acid (PFBS)	< LOR of 0.001	Maximum
Perfluoropentanesulfonic acid (PFPeS)	< LOR of 0.001	Maximum
Perfluorohexanesulfonic acid (PFHxS)	< LOR of 0.001	Maximum
Perfluoroheptanesulfonic acid (PFHpS)	< LOR of 0.001	Maximum
Perfluorooctanesulfonic acid (PFOS)	< LOR of 0.001	Maximum
Perfluorodecanesulfonic acid (PFDS)	< LOR of 0.001	Maximum
Perfluoroalkyl carboxylic acids		
Perfluorobutanoic acid (PFBA)	< LOR of 0.005	Maximum
Perfluoropentanoic acid (PFPeA)	< LOR of 0.001	Maximum
Perfluorohexanoic acid (PFHxA)	< LOR of 0.001	Maximum
Perfluoroheptanoic acid (PFHpA)	< LOR of 0.001	Maximum
Perfluorooctanoic acid (PFOA)	< LOR of 0.001	Maximum
Perfluorononanoic acid (PFNA)	< LOR of 0.001	Maximum
Perfluorodecanoic acid (PFDA)	< LOR of 0.001	Maximum
Perfluoroundecanoic acid (PFUnDA)	< LOR of 0.001	Maximum
Perfluorododecanoic acid (PFDoDA)	< LOR of 0.001	Maximum
Perfluorotridecanoic acid (PFTrDA)	< LOR of 0.001	Maximum
Perfluorotetradecanoic acid (PFTeDA)	< LOR of 0.001	Maximum
Perfluoroalkyl sulfonamido substances		
Perfluorooctane sulfonamide (FOSA)	< LOR of 0.005	Maximum
N-Methyl perfluorooctane sulfonamide (MeFOSA)	< LOR of 0.005	Maximum
N-ethylperfluorooctane sulfonamide (EtFOSA)	< LOR of 0.005	Maximum
N-methylperfluorooctane sulfonamidoethanol (MeFOSE)	< LOR of 0.005	Maximum
N-ethylperfluorooctane sulfonamidoethanol (EtFOSE)	< LOR of 0.005	Maximum
N-methyl-perfluorooctane sulfonamidoacetic acid (MeFOSAA)	< LOR of 0.005	Maximum
N-ethyl-perfluorooctanesulfonamidoacetic acid (EtFOSAA)	< LOR of 0.005	Maximum
n:2 Fluorotelomer sulfonic acids		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	< LOR of 0.001	Maximum
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	< LOR of 0.005	Maximum

Analytes	Release Limit µg/L	Limit Type
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	< LOR of 0.001	Maximum
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	< LOR of 0.001	Maximum
Cyclohexane sulfonate		
Perfluoroethylcyclohexanesulfonate (PFECBS)	< LOR of 0.01	Maximum
(n:3) Fluorotelomer Carboxylic Acids		
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	< LOR of 0.01	Maximum
3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	< LOR of 0.01	Maximum

Note: <LOR means less than the above stated limit of reporting. PFECBS and n:3 FTCA limits apply when treating any wastes that may contain hydraulic fluid and landfill leachates respectively.

All treated liquid waste batches were sampled and analysed by a NATA accredited laboratory with analytical results compared to Table 5 - Table 4 - Treated wastewater release quality characteristic limits (EA) prior to release.

Where hydraulic fluids or landfill leachates are treated there is also a requirement to test for 3:3 Fluorotelomercarboxylic acid (3:3 FTCA), 5:3 Fluorotelomer carboxylic acid (5:3 FTCA) and Perfluoroethylcyclohexane sulfonate (PFECBS).

No hydraulic fluids or landfill leachates were received for treatment during this time and therefore this testing was not undertaken.

2.19 T19 Condition

PFAS stack emissions monitoring must be undertaken once throughout the PFAS treatment trial and must include, but not be limited to:

- Sampling and analysis of emission sources to determine the PFAS extended suite containing 28 compounds; and
- Quantifying the PFAS precursors by applying the total oxidisable precursor analysis (TOPA); and
- Monitoring stack emissions from the two-point sources after the filtering devices (Building 1 and Building 2 combined; and Building 3); and
- Monitoring must be conducted by an appropriately qualified person when the waste material containing PFAS compounds are processed in the building.

This condition relates to the sludge/solid treatment trial and will be included in the sludge/solid treatment trial report by others.

2.20 T20 Condition

An independent report prepared by an appropriately qualified person that includes findings, conclusions, and recommendations, must be submitted to the administering authority with eight (8) weeks of completion of the trial. The report must include:

- A summary of the monitoring data obtained in accordance with any of the monitoring requirements of the trial conditions; and

This independent report was prepared by appropriately qualified people from Sarjaro including Leah Kaslar and Chloe Smith. This report was also reviewed by a suitably qualified person (SQP) Denton Maudlin from NX-Situ Remediation. Details of these qualified people including a short biography are included below.

Name: Leah Kaslar

Company Role: Sarjaro Technical Analyst, Remediation Projects

Project Role: Project Management and Water Treatment Operations

Qualifications: Bachelor of Science (Environment) Griffith University, Masters in Business Administration (11/12 subjects completed) Torrens University

BIO: Leah Kaslar is an environmental scientist who has worked primarily on remediation projects for PFAS contaminated water, soil and sludge across the past eight years. Within this time, she has been involved in project teams developing and implementing novel remediation technologies to remove, immobilise and destruct PFAS. Leah has applied these technologies in large scale on significant environmental remediation projects across Australia.

Key projects she has worked on include the design, construction, and operation of a large-scale water treatment plant to treat surface and groundwater from Lake Cochran for the Department of Defence at RAAF Base Williamstown. Leah also managed a significant remediation project in North Brisbane that was the first continuous water treatment plant in Queensland approved to discharge to the environment. Across the course of her career, Leah has worked with teams to successfully treat of over 2 billion litres of PFAS contaminated water.

Leah's strengths are strategic thinking, research and development, data analysis, leadership and management of teams. Leah has demonstrated the ability to undertake multi-faceted roles in challenging environments and deliver high-quality outcomes for employers, clients, governments, regulators and the environment. She is currently finishing her final subject in a Master of Business Administration with Torrens University.

Name: Chloe Smith

Company Role: Research Scientist – Innovation Manager

Project Role: Data Analysis, Management and Quality Control

Qualifications: Bachelor of Science (Environment) Griffith University

BIO: Chloe is an environmental scientist who specializes in research, technology and innovation for soil and water treatment projects. For the last decade, Chloe has held a variety of roles which have extended her experience in the environment sector, including technical positions for Gold Coast Water, Viva Energy and Remediation Contractors. Within this time, Chloe has been involved in laboratory testing and trial works to develop immobilization applications for soil and applying novel treatment applications to improve processes to treat contaminated water. Chloe has a true love for the natural environment and invests her time into working on projects that make a large-scale difference to the way that we clean-up contaminated land and water. Chloe has been an integral part of the teams who have treated over 4 billion litres of contaminated water, namely PFAS, hydrocarbons, metals, organics, and nutrients across a wide variety of sites, with a range of sensitivities. Her involvement has been a fundamental part of the works in collecting samples, collating data, analysing trends, modifying plant and equipment, and providing innovative solutions to complex issues. Chloe's roles have required her to provide product quality support, environmental health and safety representation and provide legislative advice. Chloe is known for her bright disposition and the way that she listens to understand clients to help determine the best approach for a project, and to achieve the overarching goal.

Name: Denton Maudlin

Company Role: Principal Consultant

Project Role: Report Reviewer

BIO: Denton is a civil engineer with experience in the design, construction, commissioning and operation of wastewater treatment systems to treat environmental contaminants that includes, petroleum hydrocarbons, chlorinated hydrocarbons and metals. Denton has 34 years of environmental consulting/contracting experience in the area of in-situ/ex-situ remediation with 19 years of experience in the US and 15 years of experience in Australia. Throughout that time, Denton has developed expertise in the following areas:

- In-Situ Remediation
- PFAS Management and Remediation
- Life Cycle Estimates with Monte Carlo Simulations

- Remediation Technical Expertise
- Non-aqueous Phase Liquid (NAPL) Management and Remediation
- Working with Councils, Regulators and Owners
- SQP in Queensland
- Environmental Management

Denton has closed 35 in-situ remediation projects in the US and Australia (19/16) using various technologies including soil vapour extraction, air sparging, multi-phase extraction, in-situ chemical oxidation (ISCO) and solvent-enhanced ISCO. Denton was a key individual for ISCO in Australia by setting up a way for Australians to purchase the strongest oxidant (sodium persulfate) while accounting for international patents and royalties. Denton was the first person to implement ISCO in Australia with sodium persulfate while honouring patents.

CVs for the appropriately qualified personnel who prepared and reviewed this report are included in **Appendix H – CVs**.

- a) An evaluation/explanation of the data from monitoring, including graphical representations showing relevant limits and trends.

This report includes a summary of monitoring data obtained in accordance with the monitoring requirements (see Section 5 Analytical Results), as well as an evaluation / explanation of the data from monitoring, including graphical representations showing relevant limits and trends (see Sections 5 Analytical Results and 7 Findings).

2.21 G13 Condition

All testing and monitoring required by the conditions of this environmental authority:

- a) must be carried out in the manner specified by this environmental authority; and
- b) must be carried out on samples that are representative of the material being tested; and
- c) must be carried out using monitoring devices that are calibrated and maintained according to the manufacturers' specifications; and
- d) must be carried out, interpreted and recorded by and appropriately qualified person; and

All testing and monitoring throughout the trial was undertaken in accordance with a) to d) listed above.

- e) for PFAS monitoring, must:

- a. use analysis techniques that achieve lowest practicable limits of reporting (LOR <0.5 µg/kg solids; LOR <0.001 µg/L for liquids) and maximise extraction of PFAS from samples; and Analysis techniques to achieve the lowest practicable limits of reporting (LOR <0.001 µg/L for liquids) was used for assessing the treated wastewater.
- b. comply with recommendations for sampling and analysis in the PFAS National Environmental Management Plan (NEMP) Version 2.0 or more recent editions adopted by the Queensland Government; and
Recommendations for sampling and analysis in the PFAS NEMP was complied with throughout the trial. See Section 3 and 4 of the report for more details surrounding the sampling practices adhered to.
- c. for all samples must incorporate paired standard and Total Oxidisable Precursor Assay (TOPA) analysis to determine PFAS concentrations for at least:
 - i. Perfluoroalkyl carboxylic acids (C4-C14); and
 - ii. Perfluoroalkyl sulfonic acids (C4-C10); and
 - iii. Perfluoroalkane sulfonamides (C8); and

- iv. Perfluoroalkane sulfonamido acetic acids (FOSAA/FASAAs) (C8 perfluoro); and
- v. N-alkyl perfluoroalkane sulfonamido acetic acids (MeFASAAs, EtFASAAs) (C8 perfluoro); and
- vi. n:2 Fluorotelomer sulfonic acids (n= 4, 6, 8 & 10); and

The initial monitoring sample plan design did not include G13 in error. During a review of data monitoring outcomes against the EA in July 2023 it was identified that this was not being accounted for. This was then rectified, and a data set has been collected for rounds 11-15. Based on prior experience in treatment of PFAS precursors identified by TOPA analysis it is anticipated that the average values of this data set is representative of treatment outcomes across the project duration.

Prior to this, TOPA testing was only completed on baseline samples to help understand overall PFAS concentrations for wastewater with characteristics or source information that indicated possible recent AFFF contamination. In this early trial stage prior to the informational error excluding G13 was discovered, TOPA testing was not carried out where the source of the wastewater was identified as groundwater with historical contamination.

TOPA testing was carried out for untreated wastewater samples for batches 1 and 2. Batch 1 and 2 were the Ampol Lytton caustic washout water with AFFF residue within pipework. This water was also processed within batches 6 and 7.

d. incorporate quality assurance checks for TOPA; and

Quality assurance checks were completed in accordance with National Environment Protection (Assessment of Site Contamination) Measures Schedule B2 Appendix C: Part 1 Quality Assurance and Quality Control (NEPC, 2011) (see Section 6).

e. total organic fluorine (TOF) content, extractable in solids and adsorbable in liquids; and

Analysis by NATA accredited laboratory was completed for TOF. These results were recorded within the 'Analytical Results' spreadsheet. A summary of the results is displayed in Section 5 Analytical Results and discussed in Section 7 Findings of this report. Full results spreadsheet and Certificates of Analyses are displayed in **Appendix F – Analytical Results and Appendix G – Certificates of Analysis**.

The initial monitoring sample plan design did not include G13 due to information error and therefore TOF was not tested for batches 1-10. During a review of data monitoring outcomes against the EA in July 2023 it was identified that this was not being accounted for. This was then rectified, and a data set has been collected for rounds 11-15. Based on prior project experience and consistency in the treatment process across the duration of this project is considered that this data set is representative of overall treatment outcomes.

f. for any waste that may include landfill leachate, include 3:3 and 5:3 fluorotelomer carboxylic acid; and

There was no landfill leachate waste present in the wastewater, and therefore testing for 3:3 and 5:3 fluorotelomer carboxylic acid was not required.

g. for any waste that may include hydraulic fluid, include perfluoroethylcyclohexanesulfonate (PFECBS); and

There was no wastewater that may contain hydraulic fluid, and therefore testing for perfluoroethylcyclohexanesulfonate (PFECBS) was not required.

- h. where present in phase separated liquid waste, analysis of PFAS content in both phases; and
No wastewater presented in separated liquid phases, and therefore additional analysis was not required.
- i. give due regard to any advice from the administering authority concerning improvements in analysis techniques for the waste types accepted.
Sarjaro did not identify any additional testing that should be included.

3 Method

3.1 Commissioning Sampling

Initially potable wastewater was sourced and processed through the wastewater treatment plant in a hydraulic commissioning process to bed down filtration media, test pumps and dosing infrastructure and complete a leak check and repair.

Bench trials were undertaken within the Hi-Quality laboratory to determine the best treatment approach for the complex Ampol Lytton liquid waste which was to be the first batch of wastewater treated through the WWTP. Once a dosing plan was established a commissioning process was carried out throughout the system where the untreated Ampol Lytton liquid waste was processed through the system. During this time the processes were monitored, and the dosing plan adjusted to suit the large-scale treatment processes. A small volume of treated wastewater of 4,000 L was collected in discharge tanks.

Sarjaro took samples of the untreated liquid waste, partially processed liquid waste and fully treated wastewater during the commissioning period. Samples of the overall process were assessed to determine performance outcomes for individual PFAS removal stages. The treated wastewater results were assessed for compliance with the EA Wastewater Quality Characteristics (Table 5). This assessment found that the analytical results for the first Batch 001 for commissioning were compliant with the EA PFAS Wastewater Treatment Trial Wastewater Quality Characteristics and the commissioning period was completed.

This commissioning period was completed from the 14th of November 2022 to the 20th of November 2022. Following this, notification was provided to QLD DES to commence the PFAS Wastewater Treatment Trial on the 21st of November 2022. On the 21st of November 2022, Sarjaro commenced treating Batch 2 which was the first operational batch for the WWTP. The small volume of wastewater from the commissioning process (Batch 1) was amalgamated with Batch 2 within the discharge tanks.

3.2 Operational Sampling

Operational sampling commenced for Batch 2. During operations sampling the untreated source liquid waste is sampled for the full suite of analytes for compliance and monitoring listed within T14, T17 and G13. Process wastewater is sampled following major PFAS treatment stages which are Primary Wastewater (post chemical and powdered zeolite and carbon dosing, mixing and settlement) and after the Tertiary System (initial PFAS removal stages in the secondary and tertiary systems. Process sampling is for PFAS breakthrough and to understand the removal of co-contaminants likely to be in the source wastewater which may affect treatment processes. The final sample is taken of the full treated discharge wastewater post quaternary system (polishing PFAS stage) to determine compliance with EA PFAS Wastewater Treatment Trial Wastewater Quality Characteristics before the wastewater is transferred to the treated discharge tanks.

3.3 Sampling Methodology

Sarjaro has environmental, health, safety, and quality management systems in line with ISO14001, ISO9001 and AS4801 requirements. Sarjaro applies stringent, uncompromising risk assessment and procedures to our

operations such as developing and implementing our own site-specific management plans including environmental and safe work method statements (ESWMS) whilst adhering to relevant Hi-Quality management plans. Sarjaro site personnel will be site inducted.

All field staff were trained in accordance with the National sampling guidelines. Field staff wore nitrile gloves during sampling and changed gloves in between each sampling location. Samples were collected out of the designated sampling taps attached to the storage tanks and/or filter vessels. The tap was let run for 10 seconds prior to sampling, with untreated wastewater captured in the bund and returned by pump to the start of the WWTP where applicable. Hands were washed after sampling.

3.3.1 Sample Nomenclature

The sample nomenclature describes the project, client, sample location and include a unique identification number, as indicated in Table 6. All wastewater sample containers were prelabelled with the sample nomenclature and grouped into bags. This reduces the potential for human error when labelling or transcribing onto bottles.

Table 6: Sample Label Nomenclature

Aspect	Sample Nomenclature
Client	Sarjaro
Project ID	SJO6
Sample ID	SJO6_UW002
Date	29/11/23
Name of Sampler	LK

Sample location nomenclature is included in Table 7.

Table 7: Sample Location Nomenclature

Sample Location	Sample Nomenclature
Untreated Wastewater	UW
Primary Filtration	PW
Tertiary Filtration	TW
Treated Discharge Wastewater	DW
Quality Control Duplicate (interlab)	QCD
Quality Control Triplicate (intralab)	QCT

3.4 Sample Preservation and Transport

Sample preservation and transport was undertaken in accordance with the guidelines provided by the primary (Eurofins) and secondary (ALS) laboratory:

- ALS Environmental. (2016). Sample Collection Pocket Guide.
- Eurofins Environment Testing Australia Pty Ltd. (2021). Sample Preservation and Sampling Guide Liquid Matrices.

The Chain of Custody (COC) protocol was followed during sample collection, transport, receipt, and analysis. During transportation, the samples were kept chilled and secured. Transport was undertaken by a member

of the Hi-Quality or Sarjaro team or by a courier arranged by the laboratory. Sample Receipt Notifications (SRNs) were assessed by Sarjaro when received to check that samples were received intact, chilled and within appropriate holding times. Certificates of Analysis (COA) were provided to Sarjaro via e-mail from the laboratory once results were complete by the laboratories.

4 Data Quality Objectives

4.1 Step 1 - State the Problem

PFAS is one of the most significant environmental pollutants in modern times. The Hi-Quality Yatala PFAS WWTP provides a waste treatment pathway for wastewaters containing PFAS. The remediation objectives for the Sarjaro WWTP is to:

- Treat contaminated liquid waste from external sources in compliance with the EA PFAS Wastewater Treatment Trial Wastewater Quality Conditions and monitoring requirements.

4.2 Key Personnel

The site team for the project is detailed in Table 8.

Table 8: SJO6 HIQ PFAS WWTP Personnel

Name	Company	Role
Daniel Blair	Hi-Quality Group	General Manager, Waste Treatment Services
Alan Briers	Hi-Quality Group	Operations Manager – Waste Treatment Services
Jason Welch	Hi-Quality Group	Technical Manager – Waste Treatment Services
Sean Harrold	Hi-Quality Group	Chemist – Waste Treatment Services
Andrew Reardon	Sarjaro	Chief Executive / Managing Director
Scott Callinan	Sarjaro	General Manager
Leah Kaslar	Sarjaro	Technical Analyst
Chloe Smith	Sarjaro	Research Scientist
Paul Judge	Sarjaro	Wastewater Treatment Plant Operator

The decision makers identified for this project are Alan Briers and Sean Harrold from Hi-Quality Group.

The regulatory body for the site is QLD Department of Environment and Science (DES) and the local government areas relevant to the project are Gold Coast City Council and Logan City Council.

4.3 Step 2 - Identify the Decisions to be Made

Based on the wastewater treatment objectives, the following decisions are to be made:

- Has the treated wastewater been treated, in accordance with the applicable regulatory requirements (EA)?
- Has the discharge of treated wastewater been undertaken in accordance with EA volume limits?

4.4 Step 3 - Identify Information Inputs

To make the above decisions, the following inputs will be considered:

- Analytical results from untreated liquid waste and treated liquid waste for analysis completed at NATA Accredited laboratories.
- Source information for liquid waste accepted for treatment in the Hi-Quality PFAS Treatment Trial.

- Australian standards, PFAS National Environmental Management Plan 2.0 and applicable regulatory requirements
- pH readings recorded during sampling events.
- Results from commissioning and operational sampling
- EA PFAS Treatment Trial Wastewater Quality Characteristics presented in Section 2.18 Table 5.
- Assessment of data quality assurance / quality control by comparison of data quality against the Data Quality Indicators (DQI)

4.5 Step 4 - Define the Study Boundaries

The WWTP site is limited to the wastewater collection, storage, treatment, and discharge tanks within the bunded area in the Hi-Quality Yatala facility.

4.6 Step 5 - Develop the Decision Rule

Decision 1:

Has the treated wastewater been treated, in accordance with the EA Wastewater Quality Characteristics Release Limits, to minimise the risk of contaminated wastewater to impact human health and the environment?

Analytical data for treated wastewater samples was compared against the EA PFAS Treatment Trial Wastewater Quality Characteristics Limits:

- Where the analytical result/s for contaminants of concern from samples of the treated wastewater do meet the limits within the EA PFAS Treatment Trial Wastewater Quality Characteristics Limits (Section 2.18 Table 5), the answer is YES.
- If the analytical result/s for contaminants of concern from samples of the treated do not meet the limits within the EA PFAS Treatment Trial Wastewater Quality Characteristics Limits (Section 2.18 Table 5), the answer is NO. In this case, Sarjaro would investigate the following:
 - o Sampling / field record sheets from the sampling round
 - o Laboratory internal procedures / request a retest
 - o WWTP processes and ensure all treatment stages are working effectively and efficiently
 - o Retreat / retest the wastewater
 - o Review retest results
- If the analytical result/s for the contaminants of concern from samples of the retested or retreated wastewater meet the limits within the EA PFAS Treatment Trial Wastewater Quality Characteristics Release Limits then the answer is YES. Otherwise the above process is repeated.

Decision 2:

Has the discharge of treated wastewater been undertaken in accordance with EA volume limits and any applicable dispersion requirements?

The volume of the discharge tanks is 40,000L and therefore the maximum batch limit of 50,000L cannot be exceeded:

- If volumes records indicate that values are equal to or below the maximum discharge limits, the answer is YES.
- If volumes records indicate that values are above the maximum discharge limits, the answer is NO. In this case, this will constitute a breach against the conditions of the EA and Hi-Quality are to undertake reporting as required under their EA and notify onsite operational personnel as the first protocol. The error would be due to human and/or operational error. The Project Supervisor would hold a toolbox talk to ensure all operators are aware of the required volumes to be discharged after Gold Coast City Council is notified of the discharged.

4.6.1 Specifying the action level

The EA PFAS Treatment Trial Wastewater Quality Characteristics Limits have been sourced from the EA and works were undertaken in compliance with the relevant regulatory guidelines, as detailed in Section 1.5.

4.6.2 Data Acceptance Limits

Analytical data will be assessed for suitability through QA/QC sampling in the field and laboratory in compliance with the National Environment Protection (Assessment of Site Contamination) Measures Schedule B2 Appendix C: Part 1 Quality Assurance and Quality Control (NEPC, 2011).

Where laboratory analyses do not meet acceptable limits, the field records will be reviewed. Should there be no obvious source for the non-compliance such as sampler error, cross-contamination, sample preservation or heterogeneity, the laboratory will be contacted to review their documentation and processes to understand potential issues relating to the non-compliance.

Should this investigation confirm that the data may be unsuitable, a retest or additional tests may be requested on the original sample/s, on duplicate sample/s or on other samples. If there are no potential causes identified for the non-compliance or outlier, the data from the affected sample will be considered as an estimate and Sarjaro will notify Hi-Quality of any instance.

4.6.3 Limit of Reporting Assessment

Where the LOR for an analyte is normally below the EA PFAS Treatment Trial Wastewater Quality Characteristics Limits but is elevated due to justifiable reasons by the NATA certified laboratory (i.e., matrix interference) a retest will be requested to determine compliance.

Where there is insufficient volume to undertake a retest or the retest result includes an elevated LOR due to justifiable reasons by the NATA certified laboratory, the sample will be considered an estimate and Sarjaro will notify Hi-Quality of any instance.

4.6.4 Low Level Result Assessment

NATA certified laboratories have established a precedence with application of low limit of reporting guidance for assessment of values against criteria. Where values are tested at low LOR, this approach to calculate Relative Percent Difference (RPD) values will be applied to the primary sample for treated wastewater and the A PFAS Treatment Trial Wastewater Quality Characteristics Limit for the contaminant, to establish whether results are statistically the same.

- If the result is <10 times the LOR, there is no RPD limit.
- If the result is between 10-20 times the LOR, the RPD limit must not exceed 50%; and
- If the result is >20 times the LOR, the RPD limit must not exceed 30%.

4.7 Step 6 - Specify Limits on Decision Errors

The Data Quality Indicators (DQIs) of precision, accuracy, representativeness, comparability and completeness (PARCC) in accordance with the National Environment Protection (Assessment of Site Contamination) Measures Schedule B2 Appendix C: Part 1 Quality Assurance and Quality Control (NEPC, 2011) will be applied to base decisions on acceptable limits for decision errors. Minimisation of the potential for decision errors will be addressed by undertaking robust QA/QC assessment of the project data to confirm that data satisfies the DQIs, limiting the potential decision error. Any instances will be reported to Hi-Quality who will assess whether a non-compliance with the EA has occurred.

4.8 Step 7 - Optimise the Collection of Data

The collection of data is optimised by the development of an appropriate sampling and analytical strategy based on experience in WWTP performance, understanding of the site, discussions with project stakeholders

and continual review of existing site data. If the data quality objectives are not being met in accordance with the conditions of the EA, the sampling plan including sampling frequency, sample analysis and quality control samples will be adjusted, as required.

5 Analytical Results

Across the one-year trial period, Sarjaro treated a total of 15 x ~40,000 - 42,000 litre batches (refer to **Appendix D – PFAS Waste Source and Treated Batch Details** for additional information about treatment batches). Samples were taken in accordance with the EA trial conditions and tested at NATA accredited laboratories. Results were compared against the EA 'Table 4 -Treated wastewater release quality characteristic limits' (Table 5) to determine compliance. If compliance was not met, the batch was retreated through the system and another sample was collected to determine compliance. This occurred on 5 occasions across the trial period and is discussed further in Section 2.17(e). Only final treated water results (i.e., retreated results where applicable) have been included in the data analysis for the treated water in this Section.

The PFAS contaminated wastewater entering the WWTP had variable PFAS concentrations, however all were below 50 ug/L in accordance with the trial conditions. Results for Sum of PFAS for both untreated and treated water are displayed in Figure 2 below. Untreated water results for Sum of PFAS ranged from 0.572 ug/L to 6.053 ug/L. All final treated water results were below the EA Table 4 -Treated wastewater release quality characteristic limits (trace level LOR, <0.001 - <0.005 ug/L) (Table 5).

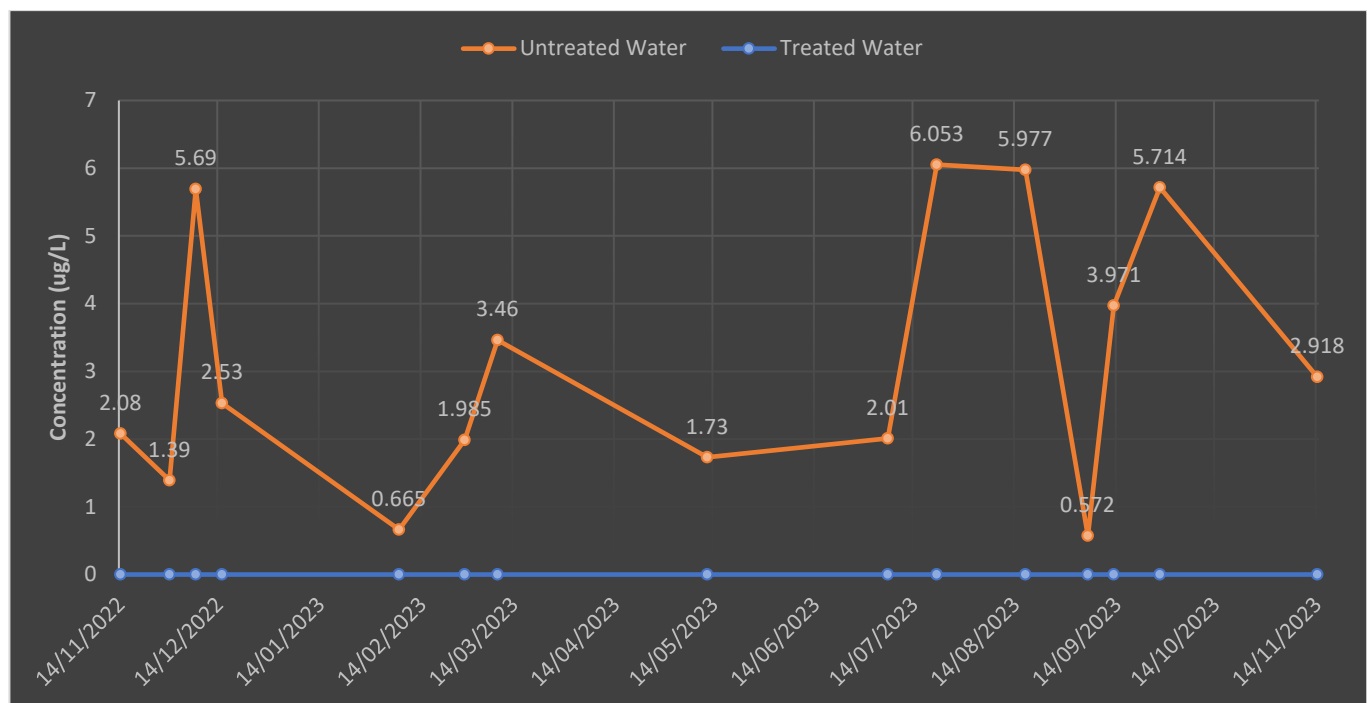


Figure 2: Sum of PFAS (ug/L) Untreated vs Treated Water

In accordance with the trial conditions, all PFAS contaminated waste accepted for treatment was analysed for qualities or co-occurring contaminants that may affect the treatment process. These additional analytes included: Total recoverable hydrocarbons, total organic carbon, chemical oxygen demand, biochemical oxygen demand, nutrients, chlorinated hydrocarbons, major anions and cations, pH, suspended solids. Sarjaro also tested for other co-occurring contaminants suspected to be present that may adversely affect the treatment process including: Dissolved Organic Carbon (DOC), Alkalinity, Chlorides, nutrients, BTEX and Heavy Metals to satisfy this condition (See T14 Condition).

Sampling was conducted throughout the treatment system with four primary sampling points:

- Untreated Wastewater (UW), Source liquid waste storage
- Primary Water (PW), Post ClearPro settlement unit
- Tertiary Water (TW), Post Zeolite and Activated Carbon Filtration
- Discharge / Treated Water (DW), Post Anion Exchange Resin and Activated Carbon Filtration

The average of results across the trial period for the primary contaminants of concern were calculated and are displayed in Table 9 below.

Table 9 Hi-Quality PFAS WWTP Result Averages

Analytes	Units	Untreated Liquid Waste	Primary Treated Water	Tertiary Water	Treated Discharge Water
Sum of PFASs	µg/L	3.44	1.35	0.07	< 0.005
Total Suspended Solids	mg/L	224	101	16	18
BTEXN	mg/L	0.04	0.016	< 0.006	< 0.006
Heavy Metals	mg/L	3.15	1.15	0.27	0.25
TRH C6-C10	mg/L	0.70	0.39	0.18	0.06
TRH >C10-C40	mg/L	9.36	9.28	0.25	0.12
TOF / AOF*	mg/L	< 5	< 5	< 5	< 5
TOPA Sum of PFASs	µg/L	13.78	1.47	0.21	< 0.10

*The laboratory analysed for Total Organofluorine (TOF) and Adsorbable Organofluorine (AOF) on different reports, which are the same method, with the only differing factor being the LOR (TOF LOR = <5 mg/L and AOF LOR = <0.05 mg/L). Across the untreated (UW) and treated discharge water (DW) samples, all TOF and AOF results were non-detect.

To assess the effectiveness of each treatment stage for PFAS and other analytes, Sarjaro calculated the percent reduction removal across the treatment stages from the overall averages in Table 9.

Table 10: Percent Reduction Removal Across Treatment Stages

Analytes	Units	Untreated Water	Primary Water	Tertiary Water	Discharge / Treated
Sum of PFASs (n=30)*	%	0.0	60.8	97.94	99.85
Total Suspended Solids	%	0.0	55	93	92
BTEXN	%	0.0	57.29	83.50	83.48
Heavy Metals	%	0.0	63.6	91.34	92.04
TRH C6-C10	%	0.0	43.9	74.04	91.70
TRH >C10-C40 (total)*	%	0.0	0.8	97.32	98.75
TOPA Sum of PFASs (n=30)*	%	0.0	89.4	98.51	99.27

The AOF results were non-detect across the trial and therefore have not been included in the percent reduction removal calculations.

Figure 3 provides a visual depiction of the contaminants reducing across the process flow.

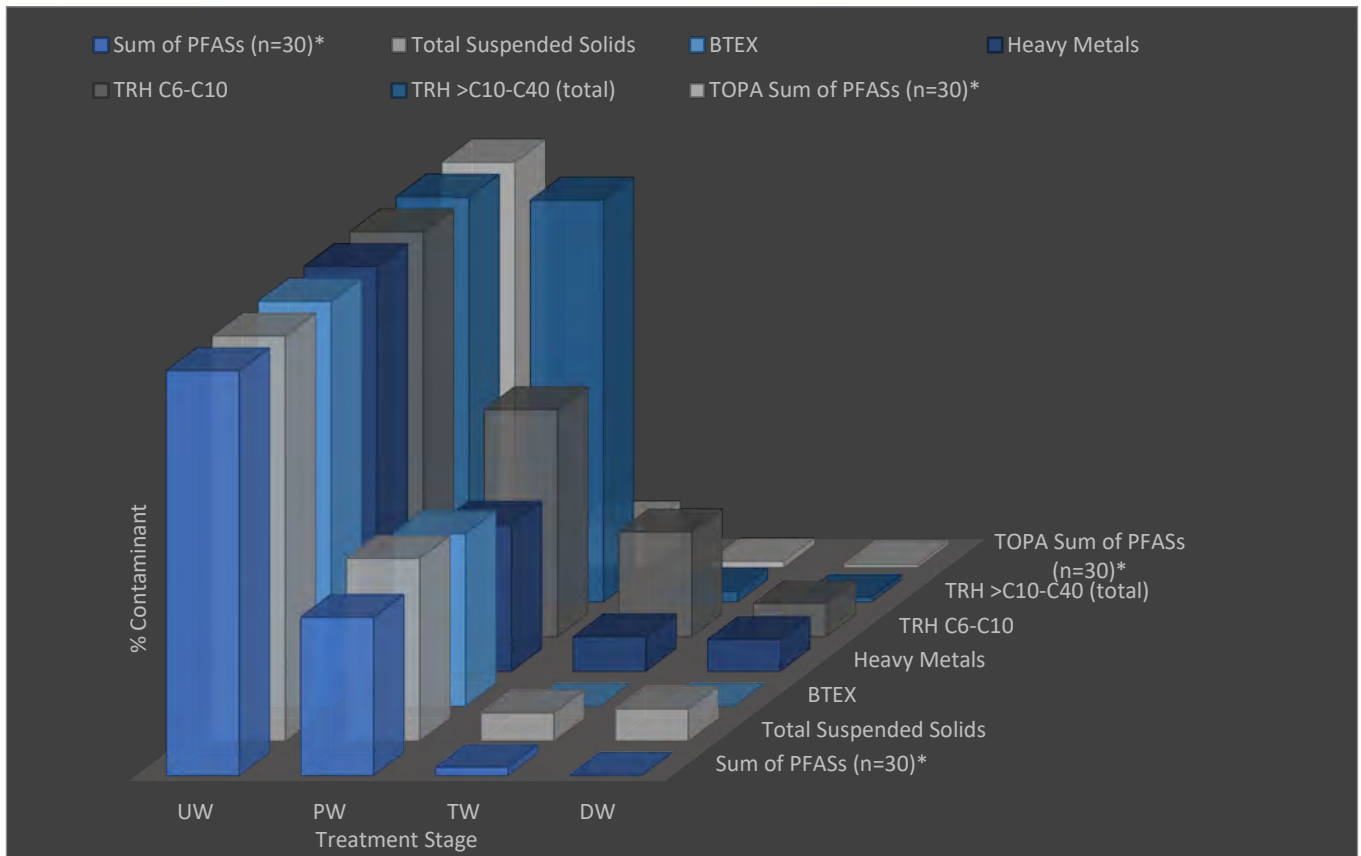


Figure 3: Hi-Quality PFAS WWTP reduction of contaminants across process flow for average results

As a further comparison, Figure 4 displays the average TOPA Sum of PFAS results vs the Sum of PFAS results across each treatment stage to demonstrate the reduction for both precursors and end-point analytes.

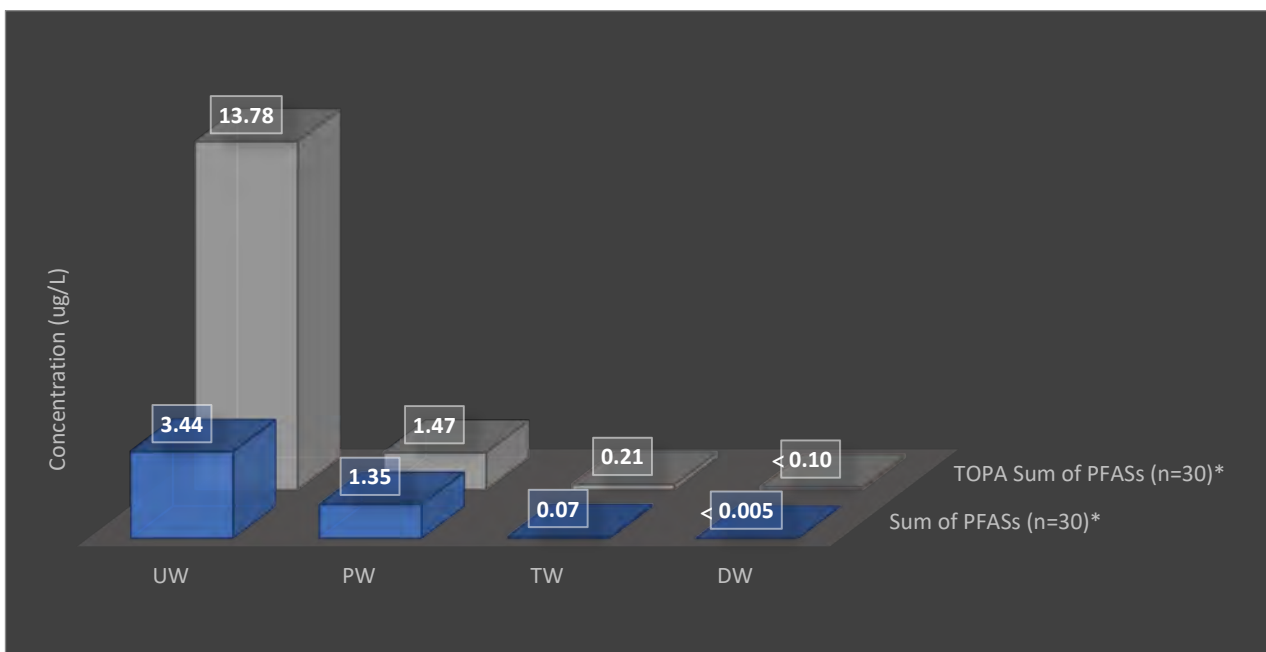


Figure 4: Hi-Quality PFAS WWTP Average TOPA Sum of PFAS vs Sum of PFAS Averages across treatment stages

6 Quality Assurance / Quality Control and Data Quality Indicators

Data Quality Indicators (DQIs) of precision, accuracy, representativeness, comparability and completeness (PARCC) which were utilised in the sampling and analysis for the trial were in accordance with the National Environment Protection (Assessment of Site Contamination) Measures Schedule B2 Appendix C: Part 1 Quality Assurance and Quality Control (NEPC, 2011) and are discussed in Table 11.

Table 11: Quality Control and Data Quality Indicators

Aspect	Data Quality Indicator	Comments and Acceptable Control Limits
Sample Analysis	Representativeness	Sarjaro used NATA accredited laboratory and methods for the analytes to be determined. Eurofins was the primary laboratory and ALS was the secondary laboratory. Appropriate detection limits were used to determine compliance against limits. Inter-laboratory and intra-laboratory QA/QC results were collected, tested and analysed.
QA/QC	Comparability	One in 10 blind duplicates (intra-laboratory), one in 20 blind triplicates (inter-laboratory) were collected, tested and analysed. Intra-laboratory samples were sent to Eurofins for testing and inter-laboratory samples were sent to ALS for testing.
Holding Times	Completeness	All samples were submitted to the laboratory within the required laboratory holding times.
Field Duplicate and Triplicate samples	Comparability, Precision	Sarjaro applied the low limit of reporting (LOR) guidance for Relative Percent Difference (RPD) values as demonstrated by the primary and secondary laboratory internal quality procedures where: - If the result is <10 times the LOR, there is no RPD limit - If the result is between 10-20 times the LOR, the RPD limit must not exceed 50% - If the result is >20 times the LOR, the RPD limit must not exceed 30% RPDs were calculated by comparing quality control interlab and intralab samples to the primary sample. RPDs were found to be within the guidance ranges for all samples verifying the quality of the data.
Laboratory Duplicates	Precision	Laboratory duplicates were analysed at a rate in accordance with the laboratory QA/QC monitoring. Low limit of reporting (LOR) guidance for RPD values were implemented in assessing the data. There were no non-compliances reported.
Recovery of matrix spikes, surrogates and laboratory control samples	Accuracy	The majority of analytical results were within range for matrix spike recovery, surrogates and laboratory control samples. Where laboratory recoveries were outside the range of 70% to 140% recovery, the limit of reporting was adjusted due to account for the error.

7 Findings

During the one-year trial period, Sarjaro treated 15 batches of PFAS contaminated wastewater. Sampling was conducted in accordance with the EA license conditions, as well as the quality requirements within the NEPC (Table 11), and results were compared against the EA 'Table 4 -Treated wastewater release quality characteristic limits' (Table 5).

Untreated water results for Sum of PFAS ranged from 0.572 ug/L to 6.053 ug/L, average 3.44 ug/L. All final treated water results were below the EA Table 4 -Treated wastewater release quality characteristic limits (Table 5) (trace level LOR, <0.001 - <0.005 ug/L), confirming the WWTP was effective at removing PFAS from the wastewater (Figure 2). There were 5 occasions across the 1-year trial period where the DW PFBA result was elevated, ranging from 0.013 ug/L – 0.094 ug/L (Table 4). These batches were retreated through the WWTP and sampled again, with all retreat results meeting criteria.

Sarjaro assessed the additional co-contaminants which were analysed across the trial period in accordance with the EA conditions and averages were taken from each treatment stage. The averages in the untreated water showed the primary co-contaminants present within the wastewater were total suspended solids (224 mg/L), heavy metals (3.15 mg/L) and hydrocarbons (9.36 mg/L) (Table 8). Although the WWTP was designed primarily for PFAS treatment, Sarjaro were cognisant that co-contaminants would be present in the wastewater and would require treatment prior to the specialised PFAS filtration media. The upfront primary treatment stage was designed to be versatile, allowing Sarjaro to dose a variety of chemicals at differing concentrations depending on the influent wastewater characteristics. This allowed for the primary treatment to remove 55% of the total suspended solids, 64% of the heavy metals and 44% of the light hydrocarbon fractions. In addition, the upfront treatment reduced both PFAS and precursors by 61% and 89% respectively (Figure 3, Table 9, Table 10).

All contaminants were reduced further through the zeolite and activated carbons filters (tertiary water) with an 74% - 98% reduction success across the contaminants. At the DW sample point, all contaminants were reduced by 83% or higher, with PFAS and precursors being reduced by 99% (Figure 3, Table 9, Table 10).

Figure 4 provides an overview of the average Sum of PFAS TOPA (precursors) and Sum of PFAS (end-point analytes) across the trial period. Precursors were present in all samples analysed, ranging from 4.58 ug/L – 73.01 ug/L (**Appendix C – AOF / TOF, TOPA & Sum of PFAS Results**), with an average of 13.8 ug/L (Figure 4). Precursors were treated throughout the WWTP in a similar method to the end-point PFAS analytes, with the large portion being removed in the primary treatment system, and the filtration media acting as final polishing stages to reduce the concentrations even further to achieve the low level limit of reporting (<0.001ug/L - <0.005 ug/L) as required by the EA conditions, and capture the shorter chain PFAS. The results demonstrated that both precursors and end-point analytes are reduced through the WWTP, with all DW results being non-detect.

The laboratory analysed for Total Organofluorine (TOF) and Adsorbable Organofluorine (AOF) on different reports, even though AOF was requested. The laboratory advised that both TOF and AOF are the exact same method, with the only differing factor being the limit of reporting (LOR). TOF LOR = <5 mg/L and AOF LOR = <0.05 mg/L). Across the untreated (UW) and treated discharge water (DW) samples, all TOF and AOF results were non-detect, implying that the primary contaminants making up the organo-fluorine content of the water was PFAS and its precursors.

Overall, the findings from the trial were that the WWTP operated effectively to remove PFAS and the co-contaminants from the wastewater, meeting the EA criteria and allowing for safe discharge offsite.

8 Recommendations

Sarjaro designed, procured, construction, commissioned and have been operating the PFAS Treatment Trial WWTP for Hi-Quality for one year since operations commenced in November 2022. During this time, Sarjaro have also trained onsite Hi-Quality personnel in general operation of the system. In accordance with the EA, the plant was specifically designed for PFAS treatment, however Sarjaro were cognisant that the waste which was being received by Hi-Quality would contain co-contaminants which may be preferentially adsorbed to the filtration media and/or foul the media. Therefore, the plant was designed with an up-front Primary System (including pH adjustment, coagulation, flocculation and settlement using lamella plate technology) as a bulk removal stage to reduce the contaminant concentrations and allow the filtration media to target PFAS removal.

The PFAS Wastewater Treatment Trial has been underway for 12 months to date. During this time the Sarjaro team have gained extensive knowledge of the types of liquid wastes containing PFAS which are received into the facility.

Recommendations to improve processes and treatment outcomes are provided in response to operation, visual monitoring and data analysis. These are:

1. Increase storage capacity for untreated contaminated liquid wastewater for pretreatment.

Increasing the storage capacity for untreated contaminated liquid wastewater will allow for separation of unique waste streams which could be treated in different ways to maximise treatment outcomes. This increased storage will also allow for blending of influent types where a homogenised influent from multiple waste streams may improve treatment outcomes. Storage tanks can also be used to settle suspended solids prior to wastewater entering the treatment plant to pretreat the water and remove suspended solid load.

2. Implement additional hydrocarbon treatment stages to improve recovery of organics at the start of the process flow.

On the basis of onsite experience at the Hi-Quality Waste Management Facility in Yatala the types of liquid waste streams received often have high levels of competing co-contaminants within their matrix. For this reason, future design should consider more treatment stages to remove organics including hydrocarbons and BTEX at the start of the process. This will protect downstream media from becoming loaded with organics causing leaching of low level PFAS.

3. Implement multiple stages of primary treatment to provide operational flexibility for different waste streams.

To improve operational and maintenance flexibility and support continuous operations it would be advantageous to have a WWTP with two identical systems in parallel (System A and System B). This design allows for the treatment stages to be run in parallel, series or a combination of both. Therefore, either system to be operated in isolation handling two different waste streams or as one system handling one homogenised waste stream.

This means that a low concentration PFAS ground wastewater could be run through System A at maximum flowrate with single stage chemical treatment while a high concentration complex matrix influent could be treated through System B with dual chemical treatment. This approach would mean that System A would be less loaded than System B and would have lower maintenance demands with greater longevity in running before media cleaning, regeneration, activation or replacement would be required.

In addition, the chemical dosing, mixing and settlement and filtration stages can be run in series or parallel operation depending upon influent characteristics. This means the system has the ability to run either single stage treatment to treat low to medium level PFAS (e.g. groundwater or surface water) or dual stage

treatment to treat high level PFAS and wastewater with multiple co-contaminants (e.g. Ampol). Another advantage to this design is that one system can be operated for treatment while the other system is shut down for maintenance such as backflushing, pump replacement, media maintenance or media changeout.

9 Conclusion

The Hi-Quality PFAS Treatment Trial has demonstrated the capability of the current WWTP in removing PFAS from a variety of waste streams. Lessons were learnt during this process which can be applied to improve treatment outcomes for future works onsite. These improvements include a more robust primary treatment stage to remove hydrocarbons and other organics to reduce competition downstream on specialised filtration media. Having dual treatment pathways could provide targeted treatment for more complex waste streams in the future. Sarjaro operate in a process of continual improvement and look forward to working with Hi-Quality and QLD DES to provide the Queensland construction, transport, environmental remediation, manufacturing and mining industries with best practice water treatment technology to reduce the mass balance of PFAS within the environment. Sarjaro would welcome a meeting with Hi-Quality and QLD DES to discuss the outcomes of this trial and discuss future approaches to best practice treatment.

Appendix A – Environmental Authority (EA) EA0002264

Permit

Environmental Protection Act 1994

Environmental authority EA0002264

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: EA0002264

Environmental authority takes effect on the day the authority is issued.

The anniversary date remains 1 June. The payment of the annual fee will be due each year on this day.

Environmental authority holder

Name	Registered address
Hi-Quality Waste Treatment Services Pty Ltd	12 Byte Street, Yatala QLD 4207

Environmentally relevant activity and location details

Environmentally relevant activities	Locations
ERA 54 -2(c) Operating a facility for receiving and mechanically reprocessing, in a year, more than 10,000t of general waste	12 Byte Street, Yatala QLD 4207 - Lot 513 WD6565
ERA 54 -3(c) Operating a facility for receiving and mechanically reprocessing, in a year, more than 10,000t of category 2 regulated waste	
ERA 54 -4(c) Operating a facility for receiving and mechanically reprocessing, in a year, more than 10,000t of category 1 regulated waste	
ERA 55 -2(c) Operating a facility for receiving and either reprocessing or treating, in a year, more than 10,000t of category 2 regulated waste	
ERA 55 -3(c) Operating a facility for receiving, and reprocessing or treating, in a year more than 10,000 t of category 1 regulated waste	
ERA 62 -1(b) operating a facility for receiving and sorting, dismantling, baling or temporarily storing general waste	

Environmentally relevant activities	Locations
ERA 62 -1(c) operating a facility for receiving and sorting, dismantling baling or temporarily storing category 2 regulated waste ERA 62 -1(d) operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 1 regulated waste	
ERA 57 Regulated waste transport	Mobile and temporary within the State of Queensland

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days)

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or
- b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or
- c) otherwise - on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.



Signature

Scott Blanchard

Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

21 July 2023

Date

Enquiries:

Waste Assessment
Department of Environment and Science
Phone: 1300 130 372
Email: palm@des.qld.gov.au

Privacy statement

Pursuant to section 540 of the EP Act, the Department is required to maintain a register of certain documents and information authorised under the EP Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety, unless alteration is required by the EP Act. There is no general discretion allowing the Department to withhold documents or information required to be kept on the public register. For more information on the Department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access state controlled roads), the Department of Natural Resources, Mines and Energy (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Development Approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this environmental authority are separate, and in addition to, any conditions that may be on the development approval. If a copy of this environmental authority is attached to a development approval, it is for information only, and may not be current. Please contact the Department of Environment and Science to ensure that you have the most current version of the environmental authority relating to this site.

Conditions of environmental authority

Part 1 – Site specific conditions for activities at 12 Byte Street, Yatala QLD 4207

Location: 12 Byte Street, Yatala QLD 4207 (Lot 513 Plan WD6565)

Relevant Activities:

ERA 54 -2(c) Operating a facility for receiving and mechanically reprocessing, in a year, more than 10,000t of general waste

ERA 54 -3(c) Operating a facility for receiving and mechanically reprocessing, in a year, more than 10,000t of category 2 regulated waste

ERA 54 -4(c) Operating a facility for receiving and mechanically reprocessing, in a year, more than 10,000t of category 1 regulated waste

ERA 55 -2(c) Operating a facility for receiving and either reprocessing or treating, in a year, more than 10,000t of category 2 regulated waste

ERA 55 -3(c) Operating a facility for receiving, and reprocessing or treating, in a year more than 10,000 t of category 1 regulated waste

ERA 62 -1(b) operating a facility for receiving and sorting, dismantling, baling or temporarily storing general waste

ERA 62 -1(c) operating a facility for receiving and storing, dismantling baling or temporarily storing category 2 regulated waste

ERA 62 -1(d) operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 1 regulated waste

The environmentally relevant activities conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval.

Agency interest: General	
Condition number	Condition
G1	Any breach of a condition of this environmental authority must be reported to the administering authority as soon as practicable within 24 hours of becoming aware of the breach. Records must be kept including full details of the breach and any subsequent actions taken.
G2	Activities under this environmental authority must be conducted in accordance with the following limitation: a) Putrescible waste must not be accepted.
G3	All reasonable and practicable measures must be taken to prevent or minimise environmental harm caused, or likely to be caused, by the activities.
G4	Written procedures must be developed and documented that: a) identify all potential risks to the environment from the activity, including during and outside routine operations, during closure and in an emergency; and b) identify measures to prevent or minimise the potential for environmental harm for each of the potential risks identified; and

	c) establish sampling and analysis procedures for incoming wastes in accordance with the waste sampling protocol; and d) establish an inspection and maintenance program for plant and equipment including calibration and servicing that is in accordance with manufacturer's instructions; and e) establish a staff training program on obligations under this environmental authority and the <i>Environmental Protection Act 1994</i> to be conducted as part of staff inductions and at least annually; and f) establish processes to review environmental risks, incidents, performance and complaints.
G5	Written procedures required by condition G4 must be: a) implemented; and b) reviewed at least annually; and c) provided to the administering authority upon request at the time and in the format requested.
G6	For plant and equipment, all measures necessary to comply with the conditions of this environmental authority must be: a) installed, operated and maintained in a proper and effective manner; and b) in accordance with condition G4.
G7	Sampling and analysis procedures for incoming waste required by condition G4 must include at least one representative sample from every bulk load of waste accepted at the facility.
G8	Samples taken in accordance with condition G7 must be labelled with the date and identification number, and be cross referenced with the relevant waste transport documentation.
G9	Samples taken in accordance with condition G7 must be retained for at least one month from the date of acceptance of the waste and be available for examination by an authorised person.
G10	All records must be kept for a period of at least five years and provided to the administering authority upon request.
G11	Chemicals, wastes and fuels in containers of greater than 15 litres must be stored within a secondary containment system.
G12	All analyses required under this environmental authority must be carried out by a laboratory that has National Association of Testing Authorities (NATA) certification, or an equivalent certification, for such analyses. The only exception to this condition is for initial bench scale testing of incoming waste to confirm treatment methodology.
G13	All testing and monitoring required by the conditions of this environmental authority: a) must be carried out in the manner specified by this environmental authority; and b) must be carried out on samples that are representative of the material being tested; and c) must be carried out using monitoring devices that are calibrated and maintained according to the manufacturers' specifications; and d) must be carried out, interpreted and recorded by and appropriately qualified person; and e) for PFAS monitoring, must: a. use analysis techniques that achieve lowest practicable limits of reporting (LOR <0.5 µg/kg solids; LOR <0.001 µg/L for liquids) and maximise extraction of PFAS from samples; and

	b. comply with recommendations for sampling and analysis in the PFAS National Environmental Management Plan (NEMP) Version 2.0 or more recent editions adopted by the Queensland Government; and c. for all samples must incorporate paired standard and Total Oxidisable Precursor Assay (TOPA) analysis to determine PFAS concentrations for at least: i. Perfluoroalkyl carboxylic acids (C4-C14); and ii. Perfluoroalkyl sulfonic acids (C4-C10); and iii. Perfluoroalkane sulfonamides (C8); and iv. Perfluoroalkane sulfonamido acetic acids (FOSAA/FASAAs) (C8 perfluoro); and v. N-alkyl perfluoroalkane sulfonamido acetic acids (MeFASAAs, EtFASAAs) (C8 perfluoro); and vi. n:2 Fluorotelomer sulfonic acids (n= 4, 6, 8 & 10); and d. incorporate quality assurance checks for TOPA; and e. total organic fluorine (TOF) content, extractable in solids and absorbable in liquids; and f. for any waste that may include landfill leachate, include 3:3 and 5:3 fluorotelomer carboxylic acid; and g. for any waste that may include hydraulic fluid, include perfluoroethylcyclohexanesulfonate (PFECHS); and h. where present in phase separated liquid waste, analysis of PFAS content in both phases; and i. give due regard to any advice from the administering authority concerning improvements in analysis techniques for the waste types accepted.
G14	When required by the administering authority, monitoring must be undertaken in the manner prescribed by the administering authority to investigate a complaint of environmental nuisance arising from the activity. The monitoring results must be provided within 10 business days to the administering authority upon its request.
G15	An annual monitoring report must be prepared by an appropriately qualified person(s) and submitted to the administering authority on the anniversary date of this environmental authority each year. The annual monitoring report must include: a) A summary of the previous 12 months monitoring data obtained in accordance with any of the monitoring requirements of this environmental authority; and b) An evaluation/explanation of the data from any monitoring programs, including graphical representations showing relevant limits and trends against all historical data; and c) An outline of action taken, and proposed to be taken, to minimise the environmental risk from any deficiency identified by the monitoring or recording programs.
G16	The activity must not be carried out until you have given financial assurance to the administering authority.
G17	If the administering authority increases the amount of financial assurance, you must give the additional financial assurance to the administering authority within 28 days of receiving written notice of the increase.

Agency interest: Waste	
Condition number	Condition
W1	All waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste.
W2	Incompatible wastes must not be mixed in the same container or waste storage area.
W3	Waste being treated must be lawfully treated to render it less hazardous and be fit for its intended use or disposal.
W4	Only regulated wastes listed in <i>Appendix 1 - Approved regulated wastes</i> may be accepted in accordance with the acceptance criteria, storage, treatment, and treatment timeframes.
W5	Packaged waste must be stored in the 'proposed awning' area or within the enclosed buildings, as depicted in <i>Appendix 2 – Site plan</i> .
W6	The following wastes, defined in <i>Appendix 1 - Approved regulated wastes</i>, must be stored in bulk liquid storage tanks within the 'proposed tank farm' area or in sealed containers within the enclosed buildings, as depicted in <i>Appendix 2- Site plan</i>; i. M270; ii. J120; iii. B100; and iv. C100.
W7	Waste not mentioned in W5 or W6 must be loaded, unloaded and stored in an enclosed building at all times and in accordance with <i>Appendix 2 – Site plan</i> .
W8	All treatment of waste must be undertaken in an enclosed building at all times and in accordance with <i>Appendix 2 – Site plan</i> .
W9	Waste containing PFAS must be stored within a fully enclosed container or in accordance with condition W6, unless it is accepted for treatment in accordance with PFAS treatment trial conditions T1-T20.
W10	Building 1, Building 2 and Building 3, as depicted in <i>Appendix 2- Site plan</i> , must be operated under negative pressure with roller doors closed during waste loading, unloading and treatment operations.
W11	Waste sludge must be stored in appropriately lined pits in Building 1 as shown in <i>Appendix 2 – Site plan</i> .
W12	The 'proposed awning' and 'proposed tank farm' areas, as mentioned in condition W5 and condition W6 respectively, must be bunded with concrete roll kerbing and sealed with epoxy.
W13	Records of all waste accepted must be kept, maintained and include the following: a) Time and date of acceptance; and b) Identifying label number and origin of waste load; and

	c) Net weight of waste; and d) Cross reference to relevant waste transport documentation; and e) Source/supplier of waste and name of transport contractor where applicable; and f) Type of waste; and g) Results of analysis undertaken by the waste generator prior to acceptance that effectively characterises the contaminant concentrations; and h) Results of analysis required by conditions of this environmental authority; and i) Time and date of process; and. j) Method of waste treatment, reprocessing, transfer or disposal used (where applicable).																																															
W14	Regulated waste must not be accepted, stored, reprocessed, or treated until it has been sampled and analysed in accordance with the waste sampling protocol required by condition G4.																																															
Agency interest: Acoustic																																																
Condition number	Condition																																															
N1	Other than as permitted within this environmental authority, noise generated by the activity must not cause environmental nuisance to any sensitive place or commercial place.																																															
N2	Noise from the activity must not include substantial low frequency noise components and must not exceed the levels identified in <i>Table 1 – Noise limits</i> and the associated requirements at any nuisance sensitive place or commercial place. Table 1 – Noise limits <table><tr><th rowspan="3">Noise level measured in (dB(A))</th><th colspan="3">Monday to Saturday</th><th colspan="3">Sunday and Public Holidays</th></tr><tr><th>7am–6pm</th><th>6pm–10pm</th><th>10pm–7am</th><th>9am–6pm</th><th>6pm–10pm</th><th>10pm–9am</th></tr><tr><th colspan="6">Noise measured at the nearest sensitive place</th></tr><tr><td>L_{Aeq} adj, 1 hr</td><td>Background + 3</td><td>Background + 3</td><td>Background + 0</td><td>Background + 3</td><td>Background + 3</td><td>Background + 0</td></tr><tr><td>L_{Amax} , 1 hr</td><td>-</td><td>-</td><td>47 dB(A)</td><td>-</td><td>-</td><td>47 dB(A)</td></tr><tr><th colspan="7">Noise measured at a commercial place</th></tr><tr><td>L_{Aeq} adj, 1 hr</td><td>Background + 5</td><td>Background + 5</td><td>Background + 5</td><td>Background + 5</td><td>Background + 5</td><td>Background + 5</td></tr></table> Associated requirements 1. All monitoring devices must be calibrated and maintained according to the manufacturer’s instruction manual. 2. Any monitoring must be in accordance with the most recent version of the administering authority’s <i>Noise Measurement Manual</i>. 3. Any monitoring of noise emissions from the activity must be undertaken when the activity is in operation. 4. Monitoring must include: a. L_{Aeq}, adj, T; b. Background noise (Background) as L_{A90}, adj, T; c. MaxL_{pA}, T; d. The level and frequency of occurrence of any impulsive or tonal noise; e. Atmospheric conditions including wind speed and direction; f. Effects due to extraneous factors such as traffic noise; and	Noise level measured in (dB(A))	Monday to Saturday			Sunday and Public Holidays			7am–6pm	6pm–10pm	10pm–7am	9am–6pm	6pm–10pm	10pm–9am	Noise measured at the nearest sensitive place						L _{Aeq} adj, 1 hr	Background + 3	Background + 3	Background + 0	Background + 3	Background + 3	Background + 0	L _{Amax} , 1 hr	-	-	47 dB(A)	-	-	47 dB(A)	Noise measured at a commercial place							L _{Aeq} adj, 1 hr	Background + 5	Background + 5	Background + 5	Background + 5	Background + 5	Background + 5
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L _{Aeq} adj, 1 hr	Background + 5	Background + 5	Background + 5	Background + 5	Background + 5	Background + 5																																										

	g. Location, date and time of recording. 5. All monitoring must be performed by an appropriately qualified person(s).																													
Agency interest: Air																														
Condition number	Condition																													
A1	Other than as permitted within this environmental authority, odours or airborne contaminants must not cause environmental nuisance to any sensitive place or commercial place.																													
A2	Contaminants must only be released to air from the point source in accordance with <i>Table 2 – Point source air release limits</i> and the associated requirements. Table 2 – Point source air release limits <table><tr><th>Release point</th><th>Minimum release height above ground (m)</th><th>Minimum velocity at the sampling point (m/sec)</th><th>Contaminant</th><th>Maximum release limit at the sampling point</th><th>Monitoring Frequency</th></tr><tr><td rowspan="3">Strobic fan stack serving Buildings 1 and 2</td><td rowspan="3">5.25</td><td rowspan="3">3</td><td>Total solid particulates (TSP)</td><td>50 mg/Nm³ (dry) and 0.315 g/sec</td><td rowspan="6">All stacks must be monitored for the contaminants within three months of commissioning of the facility and six monthly thereafter.</td></tr><tr><td>Volatile organic compounds (as n-propane equivalent)</td><td>40 mg/Nm³ (dry) and 0.250 g/sec</td></tr><tr><td>Total heavy metals (Note 1)</td><td>1 mg/Nm³ (dry) and 0.006 g/sec</td></tr><tr><td rowspan="3">Strobic fan stack serving Building 3</td><td rowspan="3">6</td><td rowspan="3">3</td><td>Total solid particulates (TSP)</td><td>50 mg/Nm³ (dry) and 0.535 g/sec</td></tr><tr><td>Volatile organic compounds (as n-propane equivalent)</td><td>40 mg/Nm³ (dry) and 0.427 g/sec</td></tr><tr><td>Total heavy metals (Note 1)</td><td>1 mg/Nm³ (dry) and 0.011 g/sec</td></tr></table>					Release point	Minimum release height above ground (m)	Minimum velocity at the sampling point (m/sec)	Contaminant	Maximum release limit at the sampling point	Monitoring Frequency	Strobic fan stack serving Buildings 1 and 2	5.25	3	Total solid particulates (TSP)	50 mg/Nm ³ (dry) and 0.315 g/sec	All stacks must be monitored for the contaminants within three months of commissioning of the facility and six monthly thereafter.	Volatile organic compounds (as n-propane equivalent)	40 mg/Nm ³ (dry) and 0.250 g/sec	Total heavy metals (Note 1)	1 mg/Nm ³ (dry) and 0.006 g/sec	Strobic fan stack serving Building 3	6	3	Total solid particulates (TSP)	50 mg/Nm ³ (dry) and 0.535 g/sec	Volatile organic compounds (as n-propane equivalent)	40 mg/Nm ³ (dry) and 0.427 g/sec	Total heavy metals (Note 1)	1 mg/Nm ³ (dry) and 0.011 g/sec
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			Total heavy metals (Note 1)	1 mg/Nm ³ (dry) and 0.011 g/sec																										
Note 1: Total heavy metals limit is for the total of the following heavy metals: (a) The elements antimony, arsenic, cadmium, lead, mercury, beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium, or any compound containing one or more of those elements. Associated requirements																														

	a) The release of contaminants from a point source must be directed vertically upwards without any impedance or hindrance. b) Monitoring must be undertaken during a release and at the authorised release points, frequency and for the contaminants specified in <i>Table 2 – Point source air release limits</i>. c) Monitoring must be undertaken when emissions are expected to be representative of actual operating conditions for the sample period. d) All monitoring devices must be effectively calibrated and maintained in accordance with the manufacturer's instructions and Australian and international standards. e) Air monitoring must be in accordance with the current edition of the administering authority's <i>Air Quality Sampling Manual</i>. If monitoring requirements are not described in the <i>Air Quality Sampling Manual</i>, monitoring protocols must be in accordance with methods as approved by New South Wales Environment Protection Authority, Victorian Environment Protection Authority or United States Environmental Protection Agency. f) Monitoring provisions for the release point (at the sampling point) listed in <i>Table 2</i> must comply with the Australian Standard AS 4323.1 – 1995 "Stationary source emissions Method 1: Selection of sampling positions". g) All air emission stack monitoring must be conducted by an experienced person or body which holds current National Association of Testing Authorities (NATA). h) The following tests must be performed for each required determination specified in <i>Table 2</i>: - Gas velocity and volume flow rate; - Temperature; and - Water vapour concentration. i) During the sampling period the following additional information must be gathered: - Plant throughput rate at the time of sampling; - Any typical factors that may influence air pollutant emissions; and - Reference to the actual test methods and accuracy.
A3	Pollution control measures to treat contaminants released to air in condition A2 must include: - A two stage filtering device: - Stage 1 – Particulate matter filters to remove 99% PM₁₀; and - Stage 2 - Activated carbon filters to remove Volatile Organic Compounds (VOC). - Two strobic fans to treat discharge of flue gases after the filtering device: - Strobic fan 1 – must service Building 3 (Type EF-2); and - Strobic fan 2 - must service Buildings 1 and 2 (Type EF-1). Associated requirements - The activated carbon filter(s) must be replaced when it is saturated with the VOCs and efficiency is reduced below the manufacturer's specification. - The activated carbon filter(s) and particulate filter(s) must be maintained as specified in the manufacturer's specifications and in a manner to prevent or minimise the release of contaminants to the atmosphere.
A4	The particulate matter filter(s) must have a monitoring system including an alarm (visual and audible) installed and operated to alert of any filter medium breakthrough.
A5	Dust and particulate matter emissions must not exceed the following concentrations at any sensitive place or commercial place: dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 (or more recent editions), or

	b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM ₁₀) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with Australian Standard AS 3580.9.6 (or more recent editions) or any other method approved by the administering authority.																					
A6	Dust suppression system such as misters must be used within the buildings to reduce the production of fugitive dust during waste loading, unloading and treatment.																					
A7	The bulk liquid storage tanks located in the 'proposed tank farm' area, as depicted in <i>Appendix 2-Site plan</i> , must be fitted with activated carbon filters.																					
Agency interest: Land																						
Condition number	Condition																					
L1	Contaminants must not be released to land.																					
L2	Before applying to surrender this environmental authority, the site must be rehabilitated to achieve a safe, stable, non-polluting landform.																					
Agency interest: Water																						
Condition number	Condition																					
WT1	Other than as permitted within this environmental authority, contaminants must not be released to any waters.																					
WT2	Stormwater treatment devices must be installed and maintained to collect and treat contaminated stormwater run-off from truck and plant access areas and other hard stand areas prior to release to any waters.																					
WT3	An appropriately qualified person(s) must monitor, record and interpret all releases to surface waters in accordance with <i>Table 3 – Surface water monitoring</i> and the associated requirements. <table><tr><th colspan="3">Table 3 – Surface water monitoring</th></tr><tr><th>Monitoring release locations</th><th rowspan="2">Contaminant</th><th rowspan="2">Monitoring requirement</th></tr><tr><th>Reference</th></tr><tr><td>SW01</td><td>Total Petroleum Hydrocarbons (TPH)</td><td rowspan="5">Quarterly when releasing</td></tr><tr><td></td><td>Total Suspended Solids (TSS)</td></tr><tr><td></td><td>pH</td></tr><tr><td>SW02</td><td>Electrical Conductivity (EC)</td></tr><tr><td></td><td>Dissolved Oxygen (DO)</td></tr><tr><td></td><td>PFAS compounds</td><td></td></tr></table> Associated requirements a) Monitoring locations must be in accordance with <i>Appendix 3 – Monitoring locations</i>.	Table 3 – Surface water monitoring			Monitoring release locations	Contaminant	Monitoring requirement	Reference	SW01	Total Petroleum Hydrocarbons (TPH)	Quarterly when releasing		Total Suspended Solids (TSS)		pH	SW02	Electrical Conductivity (EC)		Dissolved Oxygen (DO)		PFAS compounds	
Table 3 – Surface water monitoring																						
Monitoring release locations	Contaminant	Monitoring requirement																				
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	Total Suspended Solids (TSS)																					
	pH																					
SW02	Electrical Conductivity (EC)																					
	Dissolved Oxygen (DO)																					
	PFAS compounds																					

	b) Monitoring must be in accordance with the methods prescribed in the current edition of administering authority's <i>Monitoring and Sampling Manual</i>. c) Samples must be taken using representative samples. d) All determinations must employ analytical practical quantification limits sufficiently low enough to enable comparisons to be made against water quality objectives/limits relevant to the particular water quality characteristic. e) Monitoring must be undertaken during a release as per the frequency stated. f) All monitoring devices must be correctly calibrated and maintained.
WT4	Contaminants must not be released to groundwater or at a location where they are likely to release to groundwater.
WT5	A groundwater monitoring system must: a) be designed and installed by an appropriately qualified person(s) with experience and qualifications in hydrology and groundwater monitoring; and b) include a sufficient number of bores installed at locations and depths which yield representative groundwater samples from at least the uppermost aquifer so as to: i. detect any seepage of contaminants to groundwater from the site; and ii. establish the quality of groundwater affected by any seepage of contaminants; and c) include monitoring of background groundwater quality, with both hydraulically up-gradient bore(s) or background bore(s) that have not been affected by any release of contaminants to groundwater from the activity and hydraulically down gradient bore(s) of the activity for at least the following parameters: i. pH; ii. Electrical Conductivity (EC); iii. total recoverable hydrocarbons; iv. heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); v. phenols; vi. standing water level; vii. PFAS compounds; and viii. any other parameters as may be specified from time to time by the administering authority. Associated requirements a) A minimum of four bores must be monitored as part of the groundwater monitoring system. b) Monitoring must be in accordance with the current edition of the administering authority's <i>Monitoring and Sampling Manual</i>. c) Groundwater monitoring must be undertaken at least every six months. d) Measurement and recording of standing water levels must be in metres, accurate to 0.1 metres. The elevation of the reference point, relative to Australian Height Datum, for use in any groundwater level measurement must be determined to an accuracy of 0.05 metres. e) Measurement of groundwater levels must be undertaken prior to any disturbance by sampling, and must be reported as the depth in metres from the established reference point to the water surface within the bore. f) Each groundwater monitoring bore must be fitted with a locked cap at all times other than when sampling is being undertaken. g) All determinations of the quality of the groundwater must employ analytical practical quantification limits sufficiently low enough to enable comparisons to be made against water quality objectives/limits relevant to the particular water quality characteristic.

	h) Samples must be representative of the release.
WT6	An appropriately qualified person(s) must determine whether or not there has been any statistically significant increase over background values at locations hydraulically down-gradient of the approved facility for any water quality characteristic required to be monitored under the groundwater monitoring system referred to in condition WT5.
Agency interest: PFAS Treatment Trial	
Condition number	Condition
T1	A PFAS treatment trial for PFAS contaminated wastes and residues may be undertaken limited to the following waste types and treatment processes: a) Stabilisation and immobilisation of PFAS contaminated soil and the solid component of sludge waste using chemical fixation reagent RemBind; and b) Separation of PFAS from PFAS contaminated liquid waste, including groundwater, surface water, and wastewater using a wastewater treatment system as described in T2.
T2	The wastewater treatment system must include: a) Filtration; and b) Flocculation / coagulation; and c) Chlorination (if necessary); and d) pH adjustment; and e) Multistage PFAS removal which must include adsorption using, at least, granular or powdered activated carbon followed by ion exchange resins.
T3	PFAS contaminated sludge may be treated under the PFAS treatment trial provided: a) The sludge undergoes a process to separate the material into solid and liquid components upon acceptance; and b) Both the solid and liquid components comply with the acceptance limits for solid and liquid waste in the PFAS treatment trial conditions; and c) The liquid component is treated in accordance with conditions relating to PFAS contaminated liquid waste; and d) The solid component is treated in accordance with conditions relating to PFAS contaminated soils and the solid component of sludge.
T4	Waste containing PFAS must not be subject to any evaporative, thermal or other process or management likely to release PFAS to the atmosphere.
T5	The duration of the trial must not exceed twenty-four (24) consecutive calendar months, after which the activity of treating PFAS contaminated wastes and residues must cease.
T6	The administering authority must be notified in writing of the date of commencement of the trial and within 24 hours of the trial commencing.
T7	Stabilisation and immobilisation of PFAS contaminated soil and the solid component of sludge waste must occur within a dedicated area of Building 3 as shown in <i>Appendix 2 – Site Plan</i> .
T8	PFAS contaminated liquid waste must only be treated in a dedicated PFAS wastewater treatment system in Building 2 as shown in <i>Appendix 2 – Site Plan</i> .

T9	PFAS contaminated soil and the solid component of sludge waste treated on site must not contain more than: a) 5 mg/L of total PFAS compounds measured using a leach solution of pH 7 under Australian Standard Leaching Procedure (ASLP) with paired standard analysis and Total Oxidisable Precursor Assay (TOPA); or b) 50 mg/kg total PFAS Compounds.
T10	PFAS contaminated liquid waste treated on site must not contain more than 0.05 mg/L total PFAS Compounds.
T11	All PFAS contaminated waste must be clearly labelled to identify that it contains PFAS contaminants.
T12	All PFAS contaminated waste must be loaded, unloaded, treated or stored on a concrete surface that is: a) Treated and maintained to ensure an impervious barrier between the PFAS contaminants and the concrete at all times; and b) Bunded to contain any potential seepage or spillage.
T13	All PFAS contaminated soil and solid components of sludge must be mixed using a pugmill or alternative effective physical mixing device operated to achieve: a) Size reduction and/or screening of the solid waste to achieve consistency; and b) Full and consistent mixing of the chemical fixation reagent (RemBind) stabilisation product with the soil and/or solid waste particles.
T14	All PFAS contaminated waste accepted for treatment must be accompanied by the following: a) Safety data sheets and product information for any products suspected of creating the PFAS contamination; and b) Details on how the waste was generated; and c) Analysis results for qualities or co-occurring contaminants that may affect the treatment process including: i. For soils and solids: Analysis results for pH, alkalinity, ammonium, total recoverable hydrocarbons, fraction of organic carbon, cation exchange capacity, particle size to Australian Standard AS 1289, dry density and moisture content to Australian Standard AS1289, and acid sulfate soil screening to Australian Standard AS 4969 and as per requirements of the Queensland Acid Sulfate Soil Management Guideline; and ii. For liquids: Analysis results for total recoverable hydrocarbons, total organic carbon, chemical oxygen demand, biochemical oxygen demand, total nitrogen, chlorinated hydrocarbons, major anions and cations, pH, suspended solids, chlorophyll 'a' (surface waters only) and dissolved iron and aluminium for any waters obtained from groundwater or surface water potentially affected by acid sulfate soil; and iii. where there are known or potentially other co-occurring contaminants suspected to be present that may adversely affect the treatment process; those co-occurring contaminants.

T15	Where the proportion of organic fluorine mass in the sum of PFAS standard analysis and TOPA explains less than 60 percent of the measured TOF mass, additional analytical determinations to investigate the potential source of unexplained TOF mass must be undertaken using techniques commercially available¹. *Note: This is not required where the waste has previously been characterised by this method.
T16	The trial of stabilisation and immobilisation of PFAS contaminated soil and solid components of sludge waste using chemical fixation reagent RemBind must: a) Incorporate a measurement that confirms the effectiveness of mixing of the waste/soil with the chemical fixation reagent (RemBind); and b) Assess the effectiveness of the chemical fixation reagent (RemBind) in reducing the long-term leachability of the treated waste and soil; and c) Record full details of the trial including waste type, waste origin, characterisation results for the waste/soil, chemical fixation reagent (RemBind) dose rate, mixing process and fixation duration; and d) Avoid dilution of the PFAS contaminated waste/soil with other soil, substances, media or wastes as a means of achieving waste acceptance criteria, prior to or following the treatment; and e) Analyse the fixated waste/soil material using the modified multiple extraction procedure that incorporates all the PFAS analysis techniques used to characterise the pre-treated waste for PFAS and total organic fluorine; and f) Evaluate and report the fixation efficiency for the treated PFAS contaminated waste/soil; and g) Evaluate and report compliance of each sequential leach with: i. The landfill acceptance criteria prescribed in Table 7 of the PFAS National Environmental Management Plan dated May 2020, or any later version; and ii. The landfill acceptance criteria for the landfill(s) intended to accept the treated material; and iii. Keep records of the disposal of all treated wastes, treated soils and any residues.
T17	The treatment trial of PFAS contaminated liquid waste using a wastewater treatment system must: a) Assess the effectiveness of the wastewater treatment plant in removing and reducing the concentrations of PFAS contaminants in treated liquid waste; and b) Record full details of the treatment trial including waste types, waste origins, characterisation results for each waste, any breakthrough of PFAS through filtration/adsorption steps and the overall treatment process; and c) Analyse each batch of up to a maximum of 50 kilolitres of treated liquid using all the PFAS analysis techniques in condition G13 and T10 used to characterise the pre-treated liquid waste; and d) Compare analysis results for the treated liquid waste quality to the treated liquid waste limits in <i>Table 4 – Treated water release quality characteristic limits</i>; and e) If the treated liquid waste complies with the treated liquid waste limits in Table 4, provide a copy of the results to the City of Gold Coast and Logan City Council, notify the Councils of the intention to release the waste to sewer on a stated date and time period and comply with the relevant trade waste acceptance requirements; and

¹ Examples include high resolution mass spectrometry and relevant extended quantification suites.

	f) If the treated liquid waste does not comply with the treated liquid waste limits in Table 4, carry out further treatment and monitoring necessary to comply with limits; and g) Keep records of all monitoring of treated water quality.																																																																																																
T18	The release of treated water must only occur to sewer and must comply with the release limits for all quality characteristics in <i>Table 4 - Treated water release quality characteristic limits</i>. Table 4 - Treated water release quality characteristic limits <table><tr><th>Quality Characteristics</th><th>Release Limit µg/L</th><th>Limit type</th></tr><tr><td colspan="3">Perfluoroalkyl Sulfonic Acids</td></tr><tr><td>Perfluorobutane sulfonic acid (PFBS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluoropentane sulfonic acid (PFPeS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorohexane sulfonic acid (PFHxS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluoroheptane sulfonic acid (PFHpS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorooctane sulfonic acid (PFOS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorodecane sulfonic acid (PFDS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td colspan="3">Perfluoroalkyl Carboxylic Acids</td></tr><tr><td>Perfluorobutanoic acid (PFBA)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>Perfluoropentanoic acid (PFPeA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorohexanoic acid (PFHxA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluoroheptanoic acid (PFHpA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorooctanoic acid (PFOA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorononanoic acid (PFNA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorodecanoic acid (PFDA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluoroundecanoic acid (PFUnDA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorododecanoic acid (PFDoDA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorotridecanoic acid (PFTTrDA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>Perfluorotetradecanoic acid (PFTeDA)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td colspan="3">Perfluoroalkyl Sulfonamides</td></tr><tr><td>Perfluorooctane sulfonamide (FOSA)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>N-Methyl perfluorooctane sulfonamide (MeFOSA)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>N-Ethyl perfluorooctane sulfonamide (EtFOSA)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td colspan="3">(n:2) Fluorotelomer Sulfonic Acids</td></tr><tr><td>4:2 Fluorotelomer sulfonic acid (4:2 FTS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr><tr><td>6:2 Fluorotelomer sulfonic acid (6:2 FTS)</td><td>< LOR of 0.005</td><td>Maximum</td></tr><tr><td>8:2 Fluorotelomer sulfonic acid (8:2 FTS)</td><td>< LOR of 0.001</td><td>Maximum</td></tr></table>	Quality Characteristics	Release Limit µg/L	Limit type	Perfluoroalkyl Sulfonic Acids			Perfluorobutane sulfonic acid (PFBS)	< LOR of 0.001	Maximum	Perfluoropentane sulfonic acid (PFPeS)	< LOR of 0.001	Maximum	Perfluorohexane sulfonic acid (PFHxS)	< LOR of 0.001	Maximum	Perfluoroheptane sulfonic acid (PFHpS)	< LOR of 0.001	Maximum	Perfluorooctane sulfonic acid (PFOS)	< LOR of 0.001	Maximum	Perfluorodecane sulfonic acid (PFDS)	< LOR of 0.001	Maximum	Perfluoroalkyl Carboxylic Acids			Perfluorobutanoic acid (PFBA)	< LOR of 0.005	Maximum	Perfluoropentanoic acid (PFPeA)	< LOR of 0.001	Maximum	Perfluorohexanoic acid (PFHxA)	< LOR of 0.001	Maximum	Perfluoroheptanoic acid (PFHpA)	< LOR of 0.001	Maximum	Perfluorooctanoic acid (PFOA)	< LOR of 0.001	Maximum	Perfluorononanoic acid (PFNA)	< LOR of 0.001	Maximum	Perfluorodecanoic acid (PFDA)	< LOR of 0.001	Maximum	Perfluoroundecanoic acid (PFUnDA)	< LOR of 0.001	Maximum	Perfluorododecanoic acid (PFDoDA)	< LOR of 0.001	Maximum	Perfluorotridecanoic acid (PFTTrDA)	< LOR of 0.001	Maximum	Perfluorotetradecanoic acid (PFTeDA)	< LOR of 0.001	Maximum	Perfluoroalkyl Sulfonamides			Perfluorooctane sulfonamide (FOSA)	< LOR of 0.005	Maximum	N-Methyl perfluorooctane sulfonamide (MeFOSA)	< LOR of 0.005	Maximum	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	< LOR of 0.005	Maximum	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	< LOR of 0.005	Maximum	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	< LOR of 0.005	Maximum	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	< LOR of 0.005	Maximum	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	< LOR of 0.005	Maximum	(n:2) Fluorotelomer Sulfonic Acids			4:2 Fluorotelomer sulfonic acid (4:2 FTS)	< LOR of 0.001	Maximum	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	< LOR of 0.005	Maximum	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	< LOR of 0.001	Maximum
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	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	< LOR of 0.001	Maximum
	Cyclohexane sulfonate		
	Perfluoroethylcyclohexanesulfonate (PFECHS)	< LOR of 0.01	Maximum
	(n:3) Fluorotelomer Carboxylic Acids		
	5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	< LOR of 0.01	Maximum
	3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	< LOR of 0.01	Maximum
	Note: <LOR means less than the above stated limit of reporting. PFECHS and n:3 FTCA limits apply when treating any wastes that may contain hydraulic fluid and landfill leachates respectively.		
T19	PFAS stack emissions monitoring must be undertaken once throughout the PFAS treatment trial and must include, but not be limited to: a) Sampling and analysis of emission sources to determine the PFAS extended suite containing 28 compounds; and b) Quantifying the PFAS precursors by applying the total oxidisable precursor analysis (TOPA); and c) Monitoring stack emissions from the two-point sources after the filtering devices (Building 1 and Building 2 combined; and Building 3); and d) Monitoring must be conducted by an appropriately qualified person when the waste material containing PFAS compounds are processed in the building.		
T20	An independent report prepared by an appropriately qualified person that includes findings, conclusions, and recommendations, must be submitted to the administering authority with eight (8) weeks of completion of the trial. The report must include: a) A summary of the monitoring data obtained in accordance with any of the monitoring requirements of the trial conditions; and b) An evaluation/explanation of the data from monitoring, including graphical representations showing relevant limits and trends.		

Definitions for Part 1

Key terms and/or phrases bolded in this environmental authority are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Activity means the environmentally relevant activities, whether resource activities or prescribed activities, to which the environmental authority relates.

Administering authority means the Department of Environment and Science or its successors or predecessors.

Appropriately qualified person(s) means a person or persons who has professional qualifications, training, skills and experience relevant to the EA requirement and can give authoritative assessment, advice and analysis in relation to the EA requirement using the relevant protocols, standards, methods or literature.

Background means noise, measured in the absence of the noise under investigation, as $L_{A90,T}$ being the A-weighted sound pressure level exceeded for 90% of the time period of not less than 15 minutes, using Fast response.

Background bore means **groundwater** monitoring bore used to sample **groundwater** from an aquifer the water quality of which may be potentially affected by the **activity**. This may be an **up-gradient bore**, **down-gradient bore** or bore in the same aquifer in a nearby location unaffected by the **activity**.

Commercial place means a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

Down-gradient bore means a **background bore** in a location hydraulically down gradient of those aspects of the **activity** that may affect groundwater quality.

Environmental nuisance as defined in Chapter 1 of the *Environmental Protection Act 1994*.

Financial assurance as defined in Chapter 5 of the *Environmental Protection Act 1994*.

General waste means waste other than regulated waste.

Groundwater means water that occurs naturally in, or is introduced artificially into, an aquifer.

Groundwater monitoring system means a system of **groundwater** monitoring devices, such as monitoring bores, used to provide data in respect to the level and quality of **groundwater** in the uppermost aquifer where the location of the **groundwater** monitoring devices is such that comparisons of **groundwater** quality and **groundwater** level can be made between **groundwater** flowing from beneath the site (down-gradient flow) of the **activity** and **groundwater** flowing towards the site of the **activity** (up-gradient flow). **Incompatible waste** means waste that may chemically react when:

1. placed in proximity to other wastes; and/or
2. mixed with other wastes.

$L_{Aeq,adj,T}$ means the adjusted A weighted equivalent continuous sound pressure level measures on fast response, adjusted for tonality and impulsiveness, during the time period T, where T is measured for a period no less than 15 minutes when the **activity** is causing a steady state noise, and no shorter than one hour when the approved **activity** is causing an intermittent noise.

$L_{Amax,T}$ means the maximum A-weighted sound pressure level measured over a time period T of not less than 15 minutes, using Fast response.

Land does not include **waters**.

Measures have the broadest interpretation and includes plant, equipment, physical objects, monitoring, procedures, actions, directions and competency.

Modified Multiple Extraction Procedure means waste testing method based on US EPA Method 1320 and designed to stimulate the leaching that a waste will undergo from repetitive precipitation of acid rain on an improperly designed landfill (<https://19january2017snapshot.epa.gov/sites/production/files/2015-12/documents/1320.pdf>) with the following modifications:

- a) not using an acid rain leach solution simulation; and
- b) using instead a leach solution of pH 7 under Australian Standard leaching Procedure (ASLP); and
- c) a leach solution of pH 5 under either or both of the Toxicity Characteristic Leaching Procedure (TCLP) and ASLP, depending upon acceptance limits for the waste. **NATA** means National Association of Testing Authorities.

Normal cubic metre (Nm³) means the volume of dry gaseous contaminant which occupies 1 cubic metre at a temperature of zero degrees Celsius and at an absolute pressure of 101.3 kilopascals.

Packaged waste means waste sealed in drums or intermediate bulk containers (IBCs).

PFAS means per-and poly-fluoroalkyl substances.

PFAS compounds means the PFAS sub-classes outlined in Appendix A of the most recent edition of the PFAS National Environmental Management Plan.

Records include breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition of this authority.

RemBind means the chemical fixation reagent registered as RemBind®, capable of **PFAS** stabilisation and immobilisation.

Secondary containment system means a system designed, installed and operated to prevent any release of contaminants from the system, or containers within the system, to land, **groundwater**, or surface waters. A first flush stormwater system must not be used as a secondary containment system.

Sensitive place includes the following and includes a place within the curtilage of such a place reasonably used by persons at that place:

1. a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
2. a motel, hotel or hostel; or
3. a kindergarten, school, university or other educational institution; or
4. a medical centre or hospital; or
5. a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
6. a public park or garden; or
7. for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2019.

Substantial low frequency noise means a noise emission that has an unbalanced frequency spectrum shown in a one-third octave band measurements, with a predominant component within the frequency range 10 to 200 Hz. It includes any noise emission likely to cause an overall sound pressure level at a noise sensitive place exceeding 55 dB(Z).

Up-gradient bore means a **background bore**, in a location hydraulically up gradient of all potential influences of the **activity** that may affect **groundwater** quality.

Waste sampling protocol means requirements prescribed in Division 1 and 2, Part 1 of Chapter 5 of the Environmental Protection Regulation 2019 (EP Reg) and in Victorian Environmental Protection Authority's *Industrial Waste Resource Guidelines – Sampling and Analysis of Waters, Wastewaters, Soils and Wastes* (2009).

Waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and **groundwater** and any part thereof.

You means the holder of the environmental authority.

Part 2 – ERA 57 Regulated waste transport

Location: Mobile and temporary

Relevant Activities:

ERA 57 Regulated waste transport

The environmentally relevant activity conducted on a mobile and temporary basis must be conducted in accordance with the following conditions of approval.

Eligibility criteria

Eligibility criteria
Regulated waste is transported by vehicles

Conditions of environmental authority

Condition number	Condition
Agency Interest: General	
2-G1	All reasonable steps must be taken to ensure the activity complies with the eligibility criteria.
2-G2	The activity must be undertaken by vehicles whose registration details must be provided to the administering authority before commencing the activity. The administering authority must be notified within 10 business days of any change to the vehicle registration details.
2-G3	The activity is undertaken by vehicles which are covered by a policy of insurance or other form of indemnity, for a sum that is not less than \$100,000, in respect of: a) personal injury, death, property damage and other damage (except consequential economic loss) arising out of fire, explosion, leakage or spillage of dangerous goods in, on or from the vehicle or a container on the vehicle; and b) costs incurred by or on behalf of a Commonwealth, State or Territory government authority in a clean-up resulting from any event of the kind referred to in subparagraph a) of this condition.
2-G4	Any breach of a condition of this environmental authority must be reported to the administering authority as soon as practicable within 24 hours of becoming aware of the breach. Records must be kept including full details of the breach and any subsequent actions taken.

Condition number	Condition
2-G5	The activity must be undertaken in accordance with written procedures that: a) identify potential risks to the environment from the activity during routine operations and emergencies; and b) establish and maintain control measures that minimise the potential for environmental harm; and c) ensure plant, equipment and measures are maintained in a proper and effective condition; and d) ensure plant, equipment and measures are operated in a proper and effective manner; and e) ensure that staff are trained and aware of their obligations under the <i>Environmental Protection Act 1994</i> ; and f) ensure that reviews of environmental performance are undertaken and recorded at least annually.
2-G6	The activity must not cause environmental nuisance at a sensitive place.
2-G7	All records required by conditions of this authority must be kept for at least five years and provided to the administering authority within 10 business days upon its request.
2-G8	When required by the administering authority, monitoring must be undertaken in the manner prescribed by the administering authority to investigate a complaint of environmental nuisance arising from the activity. The monitoring results must be provided within 10 business days to the administering authority upon its request.
2-G9	All vehicles, including tanks, containers and secondary containers used to transport regulated waste must be: a) maintained at all times to prevent any spillage or leakage of regulated waste or other contaminants; and b) kept free of regulated waste residues at all times when not in use; and c) must be effectively cleaned and, where used for transporting clinical waste, must be disinfected before reuse.

Condition number	Condition
2-G10	At all times, a copy of: a) this environmental authority issued by the administering authority for regulated waste transport activities; and b) the appropriate emergency guides in relation to the waste transported must be carried in the cabin of each vehicle used to transport regulated waste and when requested, be presented to an authorised officer of the administering authority or relevant regulatory agency of the State or Territory in which the vehicle is travelling. <i>Note: Standards Australia publish numerous guides including HB 76-2004 Dangerous Goods – Initial emergency response guide, and emergency procedure guides (AS1678 Series) which are available from SAI Global Business Publishing. Further, when developing emergency guides in relation to PCB's, reference should be made to the United States Environmental Protection Agency 40CFR Part 761: Polychlorinated biphenyls: notification and manifesting for PCB waste activities: clause number 761.125</i>
2-G11	When transporting regulated waste: a) any regulated waste not contained within weatherproof packages must be covered during transport to contain the load and protect it from wind and rain; and b) all regulated waste containers must be mounted securely to the vehicle and contained within the tray of the vehicle.
2-G12	When transporting packaged regulated waste, the top of any container must not protrude above the sides or gates of the vehicle by more than 30% of the height of the container.
2-G13	Road tank vehicles must: a) be constructed to minimise instability and risk of rollover; and b) be provided with roll-over protection to protect all tanks, components and fittings on the upper and side surfaces of the tank in the event of the vehicle rolling over or becoming inverted; and c) be provided with an effective bumper and/or barrier system to protect the tank and fittings from rear impact.
Agency Interest: Waste	
2-W1	Waste transported under the activity must be contained within a suitably designed waste containment structure that is constructed, operated and maintained in accordance with accepted engineering standards currently appropriate for the purpose for which the structure is intended to be used.
2-W2	Regulated waste must not be removed or released from the vehicle other than: a) for the purpose of consolidating grease trap and/or other oily wastes; or b) at a facility that can lawfully accept the waste.

Condition number	Condition
2-W3	Incompatible wastes must not be placed in the same container or transported in such a way that mixing may occur.
2-W4	A record of all regulated waste (excluding trackable waste) must be kept detailing the following information for every load of waste transported: a) date of pickup of waste, including where loads are consolidated; b) description of waste; c) quantity of waste; d) origin of the waste; and e) destination of the waste. <i>Note: Additional waste tracking requirements apply to the transportation of trackable waste in accordance with the Environmental Protection Regulation 2008.</i>
2-W5	All asbestos waste transported must be: a) double bagged and sealed in heavy duty polythene bags (minimum 200 µm thickness); or b) sealed in drums or bins that are lined with heavy-duty plastic (minimum 200 µm thickness); or c) where the volume or size of asbestos waste (e.g. large asbestos cement sheets) is greater than the volume or size of a bag, drum or bin: i. for friable asbestos waste, sealed in double lined heavy-duty plastic sheeting (minimum 200 µm thickness) prior to being placed into a waste skip, vehicle tray or similar container; or ii. for non-friable asbestos waste, placed in a waste skip, vehicle tray or similar container that has been double lined with heavy duty plastic sheeting (minimum 200 µm thickness) and kept damp, and then sealed within the plastic sheeting.
2-W6	All asbestos waste transported must be labelled with a warning statement to indicate the presence of asbestos and that dust creation and inhalation needs to be avoided.
2-W7	All particulate lead waste must be: a) double bagged and sealed in heavy duty polythene bags (minimum 200 µm thickness), and placed in containers on the vehicle; and b) labelled to indicate the presence of lead and with appropriate lead risk phrase and safety phrase.
2-W8	All clinical and related waste must be provided with a rigid secondary containment system during transport.
2-W9	Vehicles and load compartments must be locked when unattended.

Definitions for Part 2

Key terms and/or phrases bolded in this environmental authority are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Term	Definition
Activity	means the environmentally relevant activity to which this environmental authority relates. An activity may be undertaken on the whole or a part of a site.
ADG Code	means the <i>Australian code for the transport of dangerous goods by road and rail, 7th edition</i> , or more recent versions as they become available.
Administering authority	means the Department of Environment and Science or its successor or predecessors.
Asbestos-containing material	means any material, object, product or debris that contains asbestos.
Asbestos waste	means all removed asbestos-containing materials and disposable items used during the asbestos removal work, such as plastic sheeting used for an enclosure or to cover surfaces in the asbestos work area, disposable coveralls, disposable respirators and rags used for cleaning etc.
Clinical waste	means waste that has the potential to cause disease including, for example, the following: a) animal waste; b) discarded sharps; c) human tissue waste; and d) laboratory waste.
Combination vehicle	means a road vehicle that includes one or more trailers.
Commercial place	means a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.
Contaminant(s)	as defined in Section 11 of the <i>Environmental Protection Act 1994</i> .
Environmental harm	as defined in Section 14 of the <i>Environmental Protection Act 1994</i> .
Environmental nuisance	as defined in Section 15 of the <i>Environmental Protection Act 1994</i> .
Friable asbestos waste	means asbestos-containing material that is in powder form or which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure.
Incompatible waste	means waste that may chemically react when: a) placed in proximity to other wastes; and/or b) mixed with other wastes.
Land	means land excluding waters and the atmosphere.
Measures	has the broadest interpretation and includes plant, equipment, physical objects, monitoring, procedures, actions, directions and competencies.

Term	Definition
Minimise	means minimise by taking all reasonable and practical measures to minimise the adverse effect having regard to the following matters: a) the nature of the harm or potential harm b) the sensitivity of the receiving environment c) the current state of technical knowledge for the activity d) the likelihood of successful application of different measures that might be taken to minimise the adverse effects e) the financial implications of the different measures as they would relate to the type of activity f) if the adverse effect is caused by the location of the activity being carried out, whether it is feasible to carry out the activity at another location.
Non-friable asbestos waste	means asbestos-containing material that is not friable asbestos waste , including material containing asbestos fibres reinforced with a bonding compound.
Sealed	means fully contained within. Where polythene sheeting has been used, adhesive tape should be applied to the entire length of every overlap.
Sensitive place	includes the following and includes a place within the curtilage of such a place reasonably used by persons at that place: a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or b) a motel, hotel or hostel; or c) a kindergarten, school, university or other educational institution; or d) a medical centre or hospital; or e) a protected area under the <i>Nature Conservation Act 1992</i>, the <i>Marine Parks Act 2004</i> or a World Heritage Area; or f) a public park or garden; or g) for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2008.
Packaged regulated waste	means regulated waste in a container with: a) a capacity of not more than 450 litres; and b) a nett mass of not more than 400 kilograms.
Particulate lead waste	means lead waste that is capable of becoming airborne or unable to be easily recovered if a spill occurs during transport. Examples include waste from foundry filters and lead based paint residues.
Records	includes breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition of this environmental authority.
Regulated waste	As defined in Section 42 of the <i>Environmental Protection Regulation 2019</i> .
Regulatory agency	means the agency of a State or Territory that has responsibility for regulating the transport of regulated wastes in that State or Territory.

Term	Definition
Related waste	means waste that constitutes, or is contaminated with, chemicals, cytotoxic drugs, human body parts, pharmaceutical products or radioactive substances.
Risk phrase	means a phrase stated in the National Occupational Health and Safety Commission's document entitled <i>National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]</i> , or more recent versions, that gives information about the substance's hazards.
Road tank vehicle	means a truck, trailer or semi-trailer or unit in a road train, incorporating a tank, or having a tank or tanks mounted thereon, either permanently or temporarily (as defined in AS 2809.1–2008 — road tank vehicles for dangerous goods).
Safety phrase	means a phrase stated in National Occupational Health and Safety Commission's document entitled <i>National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]</i> , or more recent versions, that gives information about: a) the safe use of the substance; or b) the personal protective equipment for the substance.
Secondary containment system	means a system designed, installed and operated to prevent any release of contaminants from the system, or containers within the system, to land, groundwater, or surface waters.
Vehicle	Means a road vehicle including an articulated or combination vehicle, and does not include a train, boat or aircraft.
Waters	includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

Appendix 1 - Approved regulated wastes

Trackable waste code (as per Sch 11 of EP Reg)	Waste Type	Acceptance Criteria	Storage & handling	Treatment	Solids and sludge treatment technology	Liquid waste treatment technology	Max storage volume	Storage and treatment time
B100	Acidic solution and acids in solid form	Up to 100%	Yes	Yes	Solids would be dissolved	Dissolve/ Neutralisation	100 KL	1-2 weeks
A100	Waste from surface treatment of metals & plastics	Metals up to 5% weight/weight (w/w) Organics up to 10% w/w	Yes	Yes	Immobilisation	Precipitation/ Neutralisation	100 T	1-2 weeks
D170	Antimony and antimony compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
D130	Arsenic, arsenic compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	2,000 T	1-2 weeks
N220	Asbestos	Up to 1% in soil Packaged asbestos sheeting and industrial asbestos	Packaged waste only	Yes	Immobilisation	Precipitate/ storage	5,000 T	1-2 weeks
D290	Barium compounds (excluding barium sulphate)	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	200 T	1-2 weeks
C100	Basic (alkaline) solutions or bases (alkalis) in solid form	Up to 100%	Yes	Yes	Dissolve and treat as liquid	Dissolve/ Neutralise	100 KL	1-2 weeks
D160	Beryllium and beryllium compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	200 T	1-2 weeks
D310	Boron and boron compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
D150	Cadmium and cadmium compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	1,000 T	1-2 weeks
T100	Chemical waste arising from a research and development or teaching activity	Case by case analysis	Yes	Yes	Immobilisation	Precipitation/ Adsorption/ Chemical Oxidation	100 T	1-2 weeks

Trackable waste code (as per Sch 11 of EP Reg)	Waste Type	Acceptance Criteria	Storage & handling	Treatment	Solids and sludge treatment technology	Liquid waste treatment technology	Max storage volume	Storage and treatment time
D140	Chromium compounds (hexavalent and trivalent)	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	2,000 T	1-2 weeks
D190	Copper compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	2,000 T	1-2 weeks
D350	Chlorates	Up to 5% w/w	Yes	Yes	Immobilisation/ Storage	Adsorption	100 T	1-2 weeks
N160	Encapsulated, chemically-fixed, solidified or polymerised wastes	Case by case analysis	Yes	Yes	Immobilisation	N/A	5,000 T	1-2 weeks
G100	Esters	Organics up to 20%	Yes	Yes	Immobilisation	Adsorption	100 T	No storage, treated immediately
N190	Filter cake	Metals up to 5% w/w Organics up to 10% w/w	Yes	Yes	Immobilisation/ Bioremediation/ Chemical Oxidation	N/A	1,000 T	1-2 weeks
N140	Fire debris and fire wash waters	Case by case analysis. Non PFAS contaminated waste only	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Precipitation/ Chemical Oxidation	500 T	1-2 weeks
N150	Fly ash	Metals up to 5% w/w	Yes	Yes	Immobilisation	N/A	5,000 T	1-2 weeks
G150	Halogenated Organic Solvents	Up to 5% w/w	Yes	Yes	Immobilisation/ Bioremediation/ Chemical Oxidation	Chemical Oxidation/ Adsorption	20 T	No storage, treated immediately
N205	Residues from industrial waste treatment or disposal operations	Case by case analysis	Yes	Yes	Immobilisation/ Bioremediation/ Chemical Oxidation	N/A	1,000 T	1-2 weeks
M220	Isocyanate compounds	Case by case analysis	Yes	Yes	Storage/ Immobilisation	N/A	20 T	1-2 weeks
D220	Lead; lead compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	2,000 T	1-2 weeks

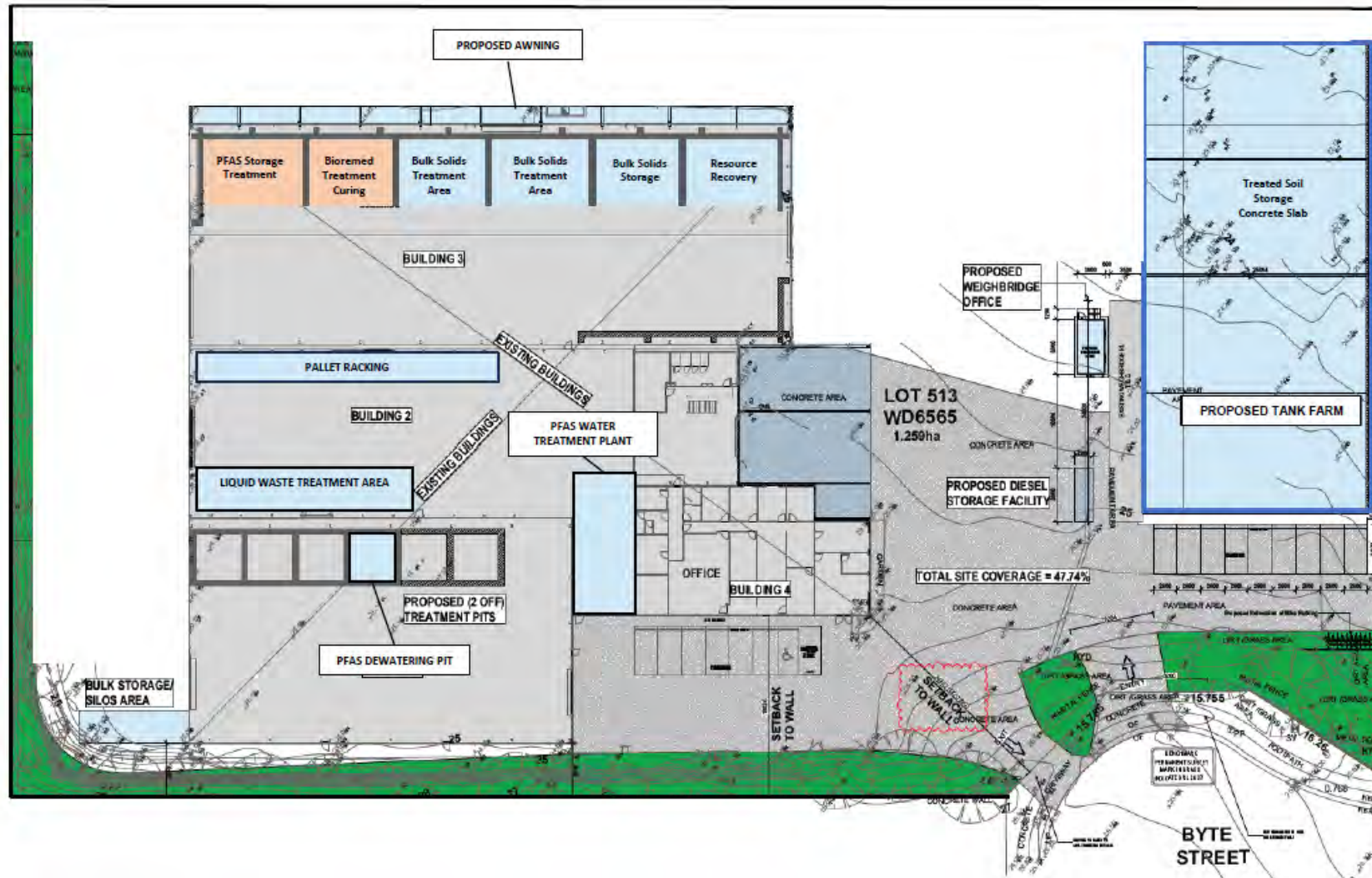
Trackable waste code (as per Sch 11 of EP Reg)	Waste Type	Acceptance Criteria	Storage & handling	Treatment	Solids and sludge treatment technology	Liquid waste treatment technology	Max storage volume	Storage and treatment time
D120	Mercury; mercury compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	500 T	1-2 weeks
D100	Metal Carbonyls	Up to 5% w/w metals (Nickel, boron, iron)	Yes	Yes	Immobilisation	Precipitation/ Adsorption	100 T	1-2 weeks
J100	Mineral Oils	Up to 50% w/w	Yes	Yes	Bioremediation	Separation	500 T	1-2 weeks
D210	Nickel, nickel compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	500 T	1-2 weeks
D300	Non-toxic salts	Up to 100%	Yes	Yes	Immobilisation	N/A	500 T	1-2 weeks
J120	Oil and water mixtures or emulsions, or hydrocarbon and water mixtures or emulsions	Up to 30%	Yes	Yes	Bioremediation/ Chemical Oxidation/ Immobilisation	Separation/ Adsorption	100 T	1-2 weeks
H110	Organic phosphorous compounds	Up to 100%	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
G110	Organic solvents, other than halogenated solvents	Up to 5% w/w	Yes	Yes	Immobilisation/ Bioremediation/ Storage	Chemical Oxidation/ Adsorption	20 T	No storage, treated immediately
D340	Perchlorates	Up to 5% w/w	Yes	Yes	Immobilisation	Adsorption	20 T	1-2 weeks
M250	Surface active agents (Surfactants)	Up to 5% w/w	Yes	Yes	Immobilisation/ Bioremediation/ Storage	Chemical Oxidation/ Adsorption	100 T	1-2 weeks
D360	Phosphorus compounds	Up to 100%	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
D240	Selenium and selenium compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
D250	Tellurium and tellurium compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
D180	Thallium and thallium compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	100 T	1-2 weeks
M230	Triethylamine catalysts for setting foundry sands	Up to 5% w/w	Yes	Yes	Immobilisation/ Bioremediation	N/A	100 T	1-2 weeks
D270	Vanadium compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	1,000 T	1-2 weeks
E100	Waste containing peroxides other than hydrogen peroxide	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation/ Adsorption	1,000 T	1-2 weeks

Trackable waste code (as per Sch 11 of EP Reg)	Waste Type	Acceptance Criteria	Storage & handling	Treatment	Solids and sludge treatment technology	Liquid waste treatment technology	Max storage volume	Storage and treatment time
H100	Waste from the manufacture, formulation or use of biocides or phytopharmaceuticals	Up to 5% w/w	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Chemical Oxidation/ Adsorption	100 T	1-2 weeks
F100	Waste from the manufacture, formulation or use of inks, dyes, pigments, paints, lacquers or varnish	Up to 5% w/w	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Chemical Oxidation/ Adsorption	20 T	No storage, treated immediately
G160	Waste from the manufacture, formulation or use of organic solvents	Up to 5% w/w	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Chemical Oxidation/ Adsorption	20 T	No storage, treated immediately
T120	Waste from the manufacture, formulation or use of photographic chemicals or processing materials	Up to 5% w/w organic and metal (predominantly silver)	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Precipitation/ Chemical Oxidation	100 T	1-2 weeks
F110	Waste from the manufacture, formulation or use of resins, latex, plasticisers, glues or other adhesives	Up to 5% w/w organic and metal contamination	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Precipitation/ Chemical Oxidation/ Adsorption	1,000 T	1-2 weeks
H170	Waste from the manufacture, formulation or use of wood preserving chemicals	Up to 5% w/w Chromium, Copper, Arsenic, Organics	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Precipitation/ Chemical Oxidation	1,000 T	1-2 weeks
R140	Waste from the manufacture or preparation of pharmaceutical products	Case by case analysis	Yes	Yes	Immobilisation/ Chemical Oxidation/ Bioremediation	Precipitation/ Chemical Oxidation	100 T	1-2 weeks
D230	Zinc compounds	Up to 5% w/w	Yes	Yes	Immobilisation	Precipitation	2,000 T	1-2 weeks
A130	Cyanides (inorganic)	Up to 5% w/w	Yes	No			20 T	1-2 weeks
M210	Cyanides (organic)	Up to 5% w/w	Yes	No			20 T	1-2 weeks

Trackable waste code (as per Sch 11 of EP Reg)	Waste Type	Acceptance Criteria	Storage & handling	Treatment	Solids and sludge treatment technology	Liquid waste treatment technology	Max storage volume	Storage and treatment time
M100	Material containing polychlorinated biphenyls (PCBs), polychlorinated naphthalene's (PCN's), polychlorinated terphenyls (PCT's) and/or polybrominated biphenyls (PBB's)	Up to 5% w/w	Yes	No			100 T	1-2 weeks
M160	Organohalogen compounds	Up to 5% w/w	Yes	No			20 T	1-2 weeks
M270	Per- and poly-fluoroalkyl substances	Refer to PFAS treatment trial conditions for treatment acceptance criteria. PFAS waste exceeding this criteria may be accepted for storage only.	Yes	Refer to PFAS treatment trial conditions			2,000 T	1-4 weeks

Note: Case by case analysis means an effective evaluation of whether the waste can be treated effectively by the treatment process types and capacity on site.

Appendix 2 – Site plan



Appendix 3 - Monitoring locations



END OF ENVIRONMENTAL AUTHORITY

Appendix B – Trial Notification Letter



HI-QUALITY WASTE TREATMENT SERVICES PTY LTD

ABN 14 631 222 234

12 Byte Street Yatala Qld 4207

PO BOX 6010 Yatala Qld 4207



(07) 3059 5009



info@hiquality.com.au



www.hiquality.com.au

21st November 2022

RE: EA0002264 Notification to Department of Environment and Science

To whom it may concern,

To satisfy condition T6 of Environmental Authority EA0002264, this is written confirmation notifying the Department the commencement of PFAS treatment trial (liquid treatment).

Kind Regards,

Daniel Blair

General Manager

Hi Quality Waste Treatment Services

Part of the Hi-Quality Group of Companies

Head Office & Accounts

PO BOX 42 Kemps Creek NSW 2178



(02) 9826 1666



info@hiquality.com.au



Appendix C – AOF / TOF, TOPA & Sum of PFAS Results

		Untreated Water	Discharge Water
		Sample No. 11	
Adsorbable Organofluorine (AOF)	µg/L	< 50	< 50
TOPA Sum of PFASs (n=30)	µg/L	10.33	< 0.1
Sum of PFASs (n=30)	µg/L	3.08	< 0.005
		Sample No. 12	
Total Organofluorine (TOF)	µg/L	< 5000	< 5000
TOPA Sum of PFASs (n=30)	µg/L	73.01	< 0.1
Sum of PFASs (n=30)	µg/L	2.806	< 0.005
		Sample No. 13	
Adsorbable Organofluorine (AOF)	µg/L	< 50	< 50
TOPA Sum of PFASs (n=30)	µg/L	9.21	< 0.1
Sum of PFASs (n=30)	µg/L	3.669	< 0.005
		Sample No. 14	
Total Organofluorine (TOF) / AOF	µg/L	< 5000	< 50
TOPA Sum of PFASs (n=30)	µg/L	4.58	< 0.1
Sum of PFASs (n=30)	µg/L	2.388	< 0.005
		Sample No. 15	
Total Organofluorine (TOF)	µg/L	< 50	< 50
TOPA Sum of PFASs (n=30)	µg/L	11.34	< 0.1
Sum of PFASs (n=30)	µg/L	6.71	< 0.005

Appendix D – PFAS Waste Source and Treated Batch Details

Treatment Date	PFAS WWTP Trial	Source	Waste Sample Number	SDS	Waste Generation Details	Discharge Date	Treated Discharge Water Volume (L)
Commissioning commenced 14/11/22							
14/11/2022	B001	Ampol Lytton	101417	Tridol ATF 3/6	Caustic washout of AFFF residue within pipework	Commissioning sample amalgamated with B002	
Tridol ATF 3/6							
21/11/2022	B002	Ampol Lytton	101417	Tridol ATF 3/6	Caustic washout of AFFF residue within pipework	5/12/2022	42,000
23/11/2022		Ampol Lytton	101417				
28/11/2022		Ampol Lytton	101417				
6/12/2022	B003	Ampol Lytton	101417	Tridol ATF 3/6	Caustic washout of AFFF residue within pipework	15/12/2022	42,000
7/12/2022		Ampol Lytton	101417				
9/01/2023	B004	Southport Light Rail	102359	AFFF 3% Foam Solution	Pumping out of groundwater containing PFAS	31/01/2023	42,000
		Southport Light Rail	102385				
11/02/2023		Southport Light Rail	102422				
		Southport Light Rail	102444				
		Southport Light Rail	102457				
17/01/2023	B005	Brisbane Airport	102606	Historical contamination not all known. Southport Light Rail AFFF 3% Foam Solution	Pumping out of groundwater containing suspected PFAS	16/02/2023	42,000
17/01/2023		Ampol Gold Coast	102483				
25/01/2023		Enoggera Barracks	102667				
		Southport Light Rail	102668				
		Enoggera Barracks	102675				
27/01/2023		Enoggera Barracks	102682				
		Brisbane Airport	102683				

Treatment Date	PFAS WWTP Trial	Source	Waste Sample Number	SDS	Waste Generation Details	Discharge Date	Treated Discharge Water Volume (L)
24/02/2023	B006	Ampol Lytton	101417	Tridol ATF 3/6	Caustic washout of AFFF residue within pipework	6/03/2023	42,000
9/03/2023	B007	Ampol Lytton	101417	Tridol ATF 3/6	Caustic washout of AFFF residue within pipework	27/03/2023	42,000
8/05/2023	B008	Southport Light Rail	103282	Historical contamination not all known. Southport Light Rail AFFF 3% Foam Solution	Pumping out of groundwater containing suspected PFAS	1/06/2023	42,000
		Bowen Hills Groundwater	103289				
		Southport Light Rail	103291				
		Southport Light Rail	103296				
		Brisbane Airport	103302				
		Southport Light Rail	103303				
		Bowen Hills Groundwater	103306				
		Coomera Connect	103307				
		Southport Light Rail	103313				
		Brisbane Airport Greywater	103315				
		Bowen Hills Groundwater	103320				
		Brisbane Airport Greywater	103328				
		Southport Light Rail	103330				
15/06/2023	B009	Southport Light Rail	103332	Historical contamination not all known. Southport Light Rail AFFF 3% Foam Solution	Pumping out of groundwater containing suspected PFAS	14/07/2023	40,000
		Brisbane Airport	103333				
		Southport Light Rail	103335				
		Brisbane Airport	103349				

Treatment Date	PFAS WWTP Trial	Source	Waste Sample Number	SDS	Waste Generation Details	Discharge Date	Treated Discharge Water Volume (L)
		Southport Light Rail	103350				
		Southport Light Rail	103353				
		Bowen Hills Groundwater	103354				
		Brisbane Airport Greywater	103356				
		Southport Light Rail	103358				
		Bowen Hills Groundwater	103360				
		Brisbane Airport Greywater	103366				
		Bowen Hills Groundwater	103368				
		Amberley RAAF Base	103371				
		Bowen Hills Groundwater	103377				
18/07/2023	B010	Brisbane Airport Qantas Hangar 3	103697	Types of foams used at Brisbane Airport included 3M Light water and Solberg RF6 and it is possible that more types have been used across the airport	Water from burst main pumped out of potentially PFAS contaminated pits	31/07/2023	40,000
			103709				
			103721				
			103731				
8/08/2023	B011	Brisbane Airport Qantas Hangar 3	103697		Water from burst main pumped out of potentially PFAS contaminated pits	29/08/2023	40,000
			103709				
			103721				
			103731				
4/09/2023	B012	Brisbane Airport Qantas Hangar 3	103697		Water from burst main pumped out of potentially PFAS contaminated pits	8/09/2023	40,000
			103709				
			103721				
			103731				
15/09/2023	B013	Brisbane Airport Qantas Hangar 3	103697		Water from burst main pumped out of potentially	22/09/2023	40,000
			103709				
			103721				

Treatment Date	PFAS WWTP Trial	Source	Waste Sample Number	SDS	Waste Generation Details	Discharge Date	Treated Discharge Water Volume (L)
			103731		PFAS contaminated pits		
1/10/2023	B014	Brisbane Airport Qantas Hangar 3	103697		Water from burst main pumped out of potentially PFAS contaminated pits	13/10/2023	40,000
			103709				
			103721				
			103731				
14/11/2023	B015	Southport Light Rail	103993	Historical contamination not all known. Southport Light Rail AFFF 3% Foam Solution. Ampol Tridol ATF 3/6	Groundwater	23/11/2023	40,000
		Southport Light Rail	103992		Groundwater		
		Amberley RAAF Base	103985		NDD / Excavation		
		Southport Light Rail	103997		Groundwater		
		Brisbane Airport	104305		Greywater		
		Ampol Refinery Lytton	104308		AFFF pipe residue		
		Enoggera Army Base	104309		NDD / Excavation		
		Brisbane Airport	104317		Greywater		
		Ampol Refinery Lytton	104323		AFFF pipe residue		
		Enoggera Army Base	104325		NDD / Excavation		
		Brisbane Airport	104326		Greywater		
		Southport Light Rail	104327		Groundwater		
		Southport Light Rail	104348		Groundwater		
		Brisbane Airport	104353		Greywater		
		Ampol Refinery Lytton	104356		AFFF pipe residue		
		Southport Light Rail	104358		Groundwater		

Appendix E – PFAS Waste Safety Data Sheets



Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: FC-600F LIGHT WATER(TM) ATC(TM) AR-AFFF 3% OR 6% - Discontinued

MANUFACTURER: 3M

DIVISION: Protective Materials & Consumer Specialties Division

ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 02/10/2009

Supersedes Date: 01/18/2005

Document Group: 05-6019-3

Product Use:

Specific Use: FIRE CONTROL AGENT

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
WATER	7732-18-5	83 - 87
DIETHYLENE GLYCOL BUTYL ETHER	112-34-5	5
ALKYL SULFATE SALT +(5890P)	Trade Secret	1 - 5
AMPHOTERIC FLUOROALKYLAMIDE DERIVATIVE + (5887P)	Trade Secret	1 - 5
INORGANIC ACETATE SALT + (5892P)	Trade Secret	1 - 5
THICKENERS + (5127P, 5123P)	Trade Secret	1 - 5
PERFLUOROALKYL SULFONATE SALTS(5) +(5144P)	Trade Secret	0.1 - 1
RESIDUAL ORGANIC FLUOROCHEMICALS	Mixture	Not Known

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Translucent, amber colored liquid.

General Physical Form: Liquid

Immediate health, physical, and environmental hazards:
chemicals which can cause birth defects or other reproductive harm.

May cause target organ effects. Contains a chemical or

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:

Contact with the skin during product use is not expected to result in significant irritation. May be absorbed through skin and cause target organ effects.

Inhalation:

Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

If thermal decomposition occurs:
May be harmful if inhaled.

May be absorbed following inhalation and cause target organ effects.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:

Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Prolonged or repeated exposure may cause:

Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

May accumulate in the body.

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

A 3M Product Environmental Data Sheet (PED) is available.

This product contains one or more organic fluorochemicals that have the potential to resist degradation and persist in the environment.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	Not Applicable
Flash Point	Not Applicable
Flammable Limits - LEL	Not Applicable
Flammable Limits - UEL	Not Applicable

5.2 EXTINGUISHING MEDIA

Product is a fire-extinguishing agent. Fire extinguishing agent.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Exposure to extreme heat can give rise to thermal decomposition. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Call 3M-HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Contain spill. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Collect the resulting residue containing solution. Place in a closed container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

For industrial or professional use only. Avoid breathing of vapors, mists or spray. Avoid skin contact. Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Do not breathe thermal decomposition products. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

7.2 STORAGE

Keep container in well-ventilated area. Store away from heat.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide appropriate local exhaust ventilation on open containers. Use with appropriate local exhaust ventilation. For those situations where the fluid might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact.

The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid skin contact.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

Gloves made from the following material(s) are recommended: Butyl Rubber.

8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray.

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Fullface supplied-air respirator, Half facepiece or fullface air-purifying respirator with organic vapor cartridges and N95 particulate prefilters. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
PERFLUOROALKYL SULFONATE SALTS(5) +(5144P)	3M	TWA	0.1 mg/m3	Skin Notation*
CERTAIN 3M FLUOROCHEMICALS DIETHYLENE GLYCOL BUTYL ETHER	3M CMRG	TWA TWA	0.1 mg/m3 35 ppm	Skin Notation*

* Substance(s) refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Translucent, amber colored liquid.
General Physical Form:	Liquid
Autoignition temperature	<i>Not Applicable</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
Boiling point	Approximately 100 °C [<i>Details: CONDITIONS: (Initial)</i>]
Density	1.0 g/ml
Vapor Density	Approximately 0.65 [<i>@ 20 °C</i>] [<i>Ref Std: AIR=1</i>]
Vapor Pressure	Approximately 17.8 mmHg [<i>@ 20 °C</i>]
Specific Gravity	Approximately 1 [<i>Ref Std: WATER=1</i>]
pH	Approximately 8.5
Melting point	<i>Not Applicable</i>
Solubility in Water	Complete
Evaporation rate	<=1.0 [<i>Ref Std: BUOAC=1</i>]
Volatile Organic Compounds	50 g/l [<i>Test Method: South Cost Air Qual Mgmt Dist</i>] [<i>Details: CONDITIONS: Calculated @ 20 C</i>]
Percent volatile	Approximately 85 %
VOC Less H2O & Exempt Solvents	<i>Not Applicable</i>
Viscosity	1950 centipoise [<i>@ 25 °C</i>] [<i>Test Method: Brookfield</i>]

SECTION 10: STABILITY AND REACTIVITY**Stability:** Stable.**Materials and Conditions to Avoid:** None known**Hazardous Polymerization:** Hazardous polymerization will not occur.**Hazardous Decomposition or By-Products**

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Fluoride	During Combustion
Toxic Vapor, Gas, Particulate	During Combustion

Hazardous Decomposition: Hydrogen fluoride has an ACGIH Threshold Limit Value of 3 parts per million (as fluoride) as a Ceiling Limit and an OSHA PEL of 3 ppm of fluoride as an eight hour Time-Weighted Average and 6 ppm of fluoride as a Short Term

Exposure Limit. The odor threshold for HF is 0.04 ppm, providing good warning properties for exposure.

Thermal decomposition of usage concentrations does not present a hazard.

SECTION 11: TOXICOLOGICAL INFORMATION

Component-Based Toxicology Information:

This product contains one or more organic fluorochemicals that have the potential to be absorbed and remain in the body for long periods of time, either as the parent molecule or as metabolites, and may accumulate with repeated exposures. There are no known human health effects from anticipated exposure to these organic fluorochemicals when used as intended and instructed.

The presence of organic fluorochemicals in the blood of the general population and subpopulations, such as workers, has been published dating back to the 1970s. 3M's epidemiological study of its own workers indicates no adverse effects.

Animal studies conducted on organic fluorochemicals which are present in this product indicate effects including liver disturbances, weight loss, loss of appetite, lethargy, and neurological, pancreatic, adrenal and hematologic effects. There are no known human health effects from anticipated exposure to these organic fluorochemicals when used as intended and instructed.

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: To reclaim or return, contact your 3M sales representative.

Discharge spent solutions and small quantities (less than 5 gal.(19 L)) to a wastewater treatment system. Reduce discharge rate if foaming occurs. Large quantities may adversely affect biological wastewater treatment systems. For larger quantities: incinerate in an industrial or commercial facility in the presence of a combustible material. Combustion products will include HF. Facility must be capable of handling halogenated materials.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

98-0211-6634-7, 98-0211-6635-4, 98-0211-6636-2, 98-0211-7178-4, H0-0015-4999-9, H0-0015-6973-2, H0-0015-6980-7, ZF-0002-0617-5, ZF-0002-0630-8, ZF-0002-0640-7, ZF-0002-0641-5

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
DIETHYLENE GLYCOL BUTYL ETHER (GLYCOL ETHERS)	112-34-5	5

This material contains a chemical which requires export notification under TSCA Section 12[b]:

<u>Ingredient (Category if applicable)</u>	<u>C.A.S. No</u>	<u>Regulation</u>	<u>Status</u>
PERFLUOROALKYL SULFONATE SALTS(5) +(5144P) (Perfluoroalkyl Sulfonates)	Trade Secret	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable
AMPHOTERIC FLUOROALKYLAMIDE DERIVATIVE + (5887P) (Perfluoroalkyl Sulfonates)	Trade Secret	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable
DIETHYLENE GLYCOL BUTYL ETHER	112-34-5	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable

This material contains a chemical regulated by an EPA Significant New Use Rule (TSCA Section 5)

<u>Ingredient (Category if applicable)</u>	<u>C.A.S. No</u>	<u>Reference</u>
PERFLUOROALKYL SULFONATE SALTS(5) +(5144P) (Perfluoroalkyl Sulfonates)	Trade Secret	67FR72854
AMPHOTERIC FLUOROALKYLAMIDE DERIVATIVE + (5887P) (Perfluoroalkyl Sulfonates)	Trade Secret	67FR72854

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

Additional Information: New Jersey Trade Secret Registry Number EIN 04499600-+.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

ADDITIONAL INFORMATION

On May 16, 2000, 3M announced the manufacturing phase out of products based on perfluorooctanyl chemistry. This product contains materials related to Perfluorooctyl Sulfonates (PFOS) and, subsequently, is the subject of a Significant New Use Rule (SNUR), 67 FR 72854, dated December 9, 2002, by the Environmental Protection Agency (EPA)

The components of this product are in compliance with the chemical registration requirements of: TSCA, EINECS, CDSL, MITI.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 3 **Flammability:** 0 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: 2 **Flammability:** 0 **Reactivity:** 0 **Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS(r)) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS(r) ratings are to be used with a fully implemented HMIS(r) program. HMIS(r) is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:

Copyright was modified.

Section 1: Trade name status was modified.

Section 14: ID Number Heading Template 1 was added.

Section 14: ID Number(s) Template 1 was added.

Section 2: Ingredient table was added.

Section 15: TSCA section 12[b] text was added.

Section 15: EPCRA 313 information was added.

Section 15: EPCRA 313 text was added.

Section 8: Exposure guidelines ingredient information was added.

Section 8: Exposure guideline note was added.

Section 15: TSCA section 12[b] information was added.

Section 8: Exposure guidelines data source legend was added.

Section 15: TSCA section 5 text - contains regulated chemical - was added.

Section 15: TSCA section 5 information was added.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from 3M.

3M MSDSs are available at www.3M.com

GHS SDS Verification

The follow SDS has been verified based upon the information below.

SDS #: 2

Product Name: FC-602 LIGHT
WATER(TM) ATC PLUS(TM) AR-AFFF
3% OR 6%

Manufacturer: 3M

Revision Date: 2/10/2009

Department: EH&S

Verified by: DJR

Date Verified: 4/28/2020

SDS SAFETY DATA SHEET

PRODUCT DESCRIPTION:	AFFF 3% Foam Solution 20L & 200L
CODES:	R3F20L, R3F200L, R3F1000L
CATEGORY:	AFFF FOAMS
REVISION DATE:	06 NOVEMBER 2016

SECTION 1 – IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Identifier:	AFFF Foam 3%								
Other Means of Identification:	<table> <tr> <th>Part Number</th><th>Product Description</th></tr> <tr> <td>R3F20L</td><td>AFFF 3% Foam Concentrate 20litre container</td></tr> <tr> <td>R3F200L</td><td>AFFF 3% Foam Concentrate 200litre container</td></tr> <tr> <td>R3F1000L</td><td>AFFF 3% Foam Concentrate 1000litre container</td></tr> </table>	Part Number	Product Description	R3F20L	AFFF 3% Foam Concentrate 20litre container	R3F200L	AFFF 3% Foam Concentrate 200litre container	R3F1000L	AFFF 3% Foam Concentrate 1000litre container
Part Number	Product Description								
R3F20L	AFFF 3% Foam Concentrate 20litre container								
R3F200L	AFFF 3% Foam Concentrate 200litre container								
R3F1000L	AFFF 3% Foam Concentrate 1000litre container								
Recommended use of the chemical:	Water based foam concentrate, fire fighting medium.								
Supplier Name: Address: Telephone Number: Emergency Number: Website: Email:	Australia Wide Fire Supplies Unit 5/54 Pendlebury Road, Cardiff NSW 2285 +61 2 4954 0333 Emergency 000 AWFS +61 2 4954 0333 (9am-5pm AET, Mon-Fri) www.awfs.com.au sales@awfs.com.au								

AUSTRALIA WIDE FIRE SUPPLIES ABN 80393915621 UNIT 5/54 PENDLEBURY RD CARDIFF NSW 2285

P: (+61) 02 49540333 E: sales@awfs.com.au W: www.awfs.com.au

SECTION 2 – HAZARDS INFORMATION**GHS Classification of the chemical**

Not a dangerous substance or mixture according to the Globally Harmonised System (GHS).

GHS Classification

Mildly irritating to eyes	Category 2B
Acute Aquatic Toxicity	Category 3
Acute Toxicity, Oral	Category 5
Acute Toxicity Dermal	Category 5

GHS Label Elements

Pictogram:	None
Signal Word:	Warning

Hazard Statements

H303	Maybe harmful if swallowed.
H320	Causes eye irritation.
H402	Harmful to aquatic life.
H313	May be harmful in contact with skin.

Precautionary Statements**Prevention**

P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330	Rinse mouth.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P370 + P378	In Case of Fire: Use dry sand, dry chemical, or alcohol-resistant foam for extinction.
P391	Collect spillage.

Other Hazards

None.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS**General Information:**

Fire fighting foam based on water soluble detergents.

Chemical Name	CAS Number	Proportion
Cocamidopropyl Betaine	61789-40-0	0-5%
Fluorocarbon surfactant	Proprietary	5-10%
Fatty acids, coco, compounds with diethanolamine	61790-63-4	5-10%
Sodium Laureth-5 Sulfate	9004-82-4	5-10%
Dipropylene glycol, monomethyl	34590-94-8	10-15%
Water	7732-18-5	70-85%

SECTION 4 – FIRST AID MEASURES

If Inhaled:	Remove promptly to fresh air. If respiratory irritation, dizziness, nausea, unconsciousness occurs, seek medical attention. Treat unconsciousness by placing the person in the coma position. Apply artificial respiration if breathing stops.
In case of Skin Contact:	Wash off with soap and plenty of water. Seek medical attention if irritation persists.
In case of Eye Contact:	Flush eye with water for a minimum of 15 minutes, keep moving eyes to ensure complete flushing. Seek medical attention promptly if irritation persists or loss of vision occurs.
If Swallowed:	Never give anything by mouth to an unconscious person. Rinse mouth with water and if conscious, dilute stomach contents by giving large amounts of Water. Seek medical attention. Do not attempt to induce vomiting or give anything by mouth to an unconscious person. Resuscitate if the subject has stopped breathing.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed.

No data available.

SECTION 5 – FIRE FIGHTING MEASURES

Extinguishing Media:	Use water fog (or if unavailable, fine water spray), dry chemical, carbon dioxide or foam.
Specific hazards arising from the substance or mixture:	Burning can produce carbon monoxide and/or carbon dioxide.

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Advice for Firefighters:	Use water to cool exposed containers. If safe to do so, remove containers from path of fire. For major fires or where atmosphere is Oxygen deficient or contains unacceptable levels of combustion products, firefighters must wear self-contained breathing apparatus with full-face mask and protective clothing. Prevent spillage from entering drains or water courses.
Further Information:	No data available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Avoid breathing vapors, mist or gas. For personal protection see section 8.
Environmental precautions:	Do not let product enter drains.
Methods and materials for containment and cleaning up:	Contain and recover product when possible. Collect product in an appropriate container and place in a chemical waste container. Collected empty containers can be disposed of through local council waste removal services.
Reference to other sections:	For disposal see section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for Safe Handling

Precautions for Safe Handling:	Protect against physical damage. Make certain the containers are well sealed when not in use.
Conditions for Safe Storage, including any incompatibilities:	Store in a cool, dry well ventilated location. Keep containers closed at all times. Not to be stored with explosives, flammable gases in bulk, poisonous gasses, spontaneously combustible substances, oxidizing agents, organic peroxides or radioactive substances.
Specific End Uses:	Apart from the uses mentioned in section 1 no other specific.
Reference to other sections:	Not applicable.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Control Parameters

National Exposure Standards

Standard Name	CAS No	TWA (ppm)	TWA (mg/m ³)
Dipropylene glycol, monomethyl	34590-94-8	50	308

Sk Absorption through the skin may be significant source of exposure.

No Exposure Standards have been assigned by the National Occupational Health and Safety Commission for other components of this product at the use levels.

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Exposure Controls:	Appropriate engineering controls. General industrial hygiene practice.
Respiratory Protection:	Respiratory protection is not required for the diluted product or when handling concentrate. If necessary use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Skin Protection:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Protective gloves.
Body Protection:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and specific to the workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Eye/Face Protection:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Other protective equipment:	None

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:	Clear water white to light yellow medium viscosity liquid.
Odour:	Slight glycol.
Boiling Point:	100°C
Solubility in Water:	Completely soluble.
Specific Gravity: (H₂O = 1)	1.026 @ 20°C
Physical State:	Liquid.
pH:	7.5 @ 20°C
Flash Point:	Non flammable.
Flammability:	Non flammable.
Flammable Limits LEL:	Non flammable.
Flammable Limits UEL:	Non flammable.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:	Data not available.
Chemical stability:	Stable under normal storage conditions.
Conditions to Avoid:	Data not available.
Incompatible materials:	Strong oxidizing agents.

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Hazardous decomposition products:	Data not available. In the event of fire: see section 5.
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SECTION 11 – TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute toxicity:	No data available. Not a likely source of exposure, however, moderate quantities of concentrate may cause irritation. Potential symptoms include nausea, diarrhea, abdominal pain and vomiting.
Inhalation:	No data available. Ingredients are considered non-hazardous when used as directed.
Skin Corrosion/Irritation:	No data available. May cause skin irritation if prolonged contact with the concentration occurs, which can result in redness, itchiness, swelling and possibly lead to dermatitis. Continual exposure to dilute solutions will cause loss of natural skin oils and drying of skin.
Serious Eye Damage/Eye Irritation:	No data available. The concentrate is considered an eye irritant. May cause eye soreness.
Respiratory or Skin Sensitization:	No data available.
Germ cell mutagenicity:	No data available.
Carcinogenicity:	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity:	No data available.
Specific Target Organ Toxicity (STOT) – single exposure:	No data available.
Specific Organ Target Toxicity (STOT) – repeated exposure:	No data available.
Aspiration Hazard:	No data available.
Additional Information:	RTECS: Not available. To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity:	No data available. Harmful to aquatic life when diluted and in concentrate form. Not harmful to birdlife.
Persistence and Degradability:	No data available.
Bioaccumulative Potential:	No data available.
Mobility in Soil:	No data available.

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Results of PBT and vPvB Assessment:	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
Other adverse effects:	No data available

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Product	Collect residue for recovery, recycling or as waste material. Product must not be disposed of to the sewerage system, drains or waterways.
Contaminated Packaging:	Dispose of container and unused contents in accordance with federal, state and local requirements. Empty container and lid can be recycled as per local council waste recycling regulations.

SECTION 14 – TRANSPORT INFORMATION

UN Number:	Not applicable.
UN Proper Shipping Name:	Not Dangerous Goods
Transport Hazardous Class(es):	Not applicable.
Packaging Group:	Not applicable.
Environmental Hazards:	Not applicable.
Special Precautions for User:	Not data available.

SECTION 15 – REGULATORY INFORMATION

Safety, health and environmental regulations / legislation for the substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons

No data available.

Carcinogen Classification under WHS Regulation 2011, Schedule 10

Not listed.

Notification Status

AICS: On the inventory, or in compliance with the inventory.

DSL: All components of this product are on the Canadian DSL.

ENCS: On the inventory, or in compliance with the inventory.

NZIoC: On the inventory, or in compliance with the inventory.

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SECTION 16 – OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H303 Maybe harmful if swallowed.

H320 Causes eye irritation.

H402 Harmful to aquatic life.

H313 May be harmful in contact with skin.

Revision, Date of preparation of this MSDS:	06 November 2016
Disclaimer	<i>This SDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user must review this SDS in the context of how the product will be handled in the workplace and in conjunction with other materials. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company listed in section 1.</i>

End SDS

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name:

FIRE-BRAKE CLASS A FOAM CONCENTRATE

Synonyms:

FIRE-BRAKE Class A Foam; FIRE-BRAKE; FIRE-BRAKE 3150A, AMEREX Class A Foam Concentrate, AMEREX Class A Foam

Product Description:

Mixture.

Product Use:

Fire Suppression Agent, Liquid Concentrate.

Restrictions on Use:

None known.

Details of the supplier of the safety data sheet:

The Solberg Company
1520 Brookfield Avenue
Green Bay, Wisconsin 54313 USA
Phone: +1 920 593 9445
Emergency Phone: +1 920 593 9445
E-mail: sds@solbergfoam.com

SECTION 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200:

Serious Eye Damage/Eye Irritation - Category 2A.

GHS Label Elements:

Symbol(s)



Signal Word

Warning.

Hazard Statement(s)

Causes serious eye irritation.

Precautionary Statement(s)

Prevention

Wear eye protection/face protection.
Wash thoroughly after handling.



SAFETY DATA SHEET – FIRE-BRAKE™ CLASS A FOAM CONCENTRATE

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Storage

None needed according to classification criteria.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
112-34-5	Diethylene glycol monobutyl ether	5-10
61789-40-0	N-Cocamidopropyl-N,N-dimethylglycine, hydroxide, inner salt	2-5

The chemical identity and/or percentage of composition is being withheld as a trade secret.

SECTION 4 - FIRST AID MEASURES

Description of Necessary Measures:

No special measures are necessary.

Inhalation:

If adverse effects occur, remove to uncontaminated area. Call a POISON CENTER or doctor if you feel unwell.

Skin:

Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

Eyes:

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. If eye irritation persists: Get medical advice/attention.

Ingestion:

If swallowed, get medical attention. Do NOT induce vomiting.

Most Important Symptoms/Effects:

Acute

Causes serious eye irritation.

Delayed

No information on significant adverse effects.



SAFETY DATA SHEET – FIRE-BRAKE™ CLASS A FOAM CONCENTRATE

SECTION 5 - FIRE FIGHTING MEASURES

Extinguishing Media:

Suitable Extinguishing Media

Not applicable as this is a fire suppression agent.

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

Negligible fire hazard.

Hazardous Combustion Products

Under certain extreme conditions there may be release of toxic and/or corrosive gases: oxides of carbon, oxides of nitrogen, oxides of sulfur, hydrogen fluoride.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water. Dike for later disposal. Avoid inhalation of material or combustion by-products.

Special Protective Equipment and Precautions for Firefighters

Wear protective clothing and equipment suitable for the surrounding fire.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Wear appropriate personal protective equipment recommended in Section 8 of the MSDS.

Methods and Materials for Containment and Cleaning Up:

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so. Collect spilled material in appropriate container for disposal.

Environmental Precautions:

Prevent entry into waterways, sewers, basements, or confined areas. Dispose of waste in accordance with environmental legislation.

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling:

Wear protective eye/face protection. Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities:

None needed according to classification criteria.

Keep only in original packaging or containers approved by the manufacturer. Do not mix with other extinguishing agent unless otherwise approved by the manufacturer.

Incompatible Materials:

Electrically energized equipment, water-reactive materials, strong oxidizer.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits:

<u>Diethylene glycol monobutyl ether</u>	<u>112-34-5</u>
ACGIH:	10 ppm TWA inhalable fraction and vapor
Europe:	10 ppm TWA; 67.5 mg/m3 TWA
	15 ppm STEL; 101.2 mg/m3 STEL
<u>Ammonium fluoride</u>	<u>12125-01-8</u>
ACGIH:	2.5 mg/m3 TWA as F (related to Fluorides)
NIOSH:	2.5 mg/m3 TWA as F (related to Fluorides, inorganic)
Europe:	2.5 mg/m3 TWA (related to Fluorides, inorganic)
OSHA (US):	2.5 mg/m3 TWA as F; 2.5 mg/m3 TWA dust (related to Fluorides)
Mexico:	2.5 mg/m3 TWA LMPE-PPT as F (related to Fluorides)

EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures

There are no biological limit values for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

Ammonium fluoride (12125-01-8)

2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific); 3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific) (related to Fluorides).

Engineering Controls

Ensure compliance with applicable exposure limits. If necessary, use appropriate local exhaust ventilation to keep exposures below the regulated limits.

Individual Protection Measures, such as Personal Protective Equipment:**Eye/face protection**

Wear splash resistant safety goggles.

Skin Protection

Wear protective clothing and equipment suitable for the surrounding fire.

Respiratory Protection

Respiratory protection is not required under normal conditions of use.

Glove Recommendations

Wear suitable gloves: nitrile, latex, rubber gloves.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear light yellow liquid	Physical State	Liquid
Odor	Mild	Color	Clear to straw
Odor Threshold	Not available	pH	7 - 8.5
Melting Point	Not available	Boiling Point	100 °C
Freezing point	Not available	Evaporation Rate	Not available
Boiling Point Range	Not available	Flammability (solid, gas)	Not available
Autoignition	Not available	Flash Point	Does not flash
Lower Explosive Limit	Not applicable	Decomposition	Not available
Upper Explosive Limit	Not applicable	Vapor Pressure	2.4 kPa at 20 °C
Vapor Density (air=1)	Not available	Specific Gravity (water=1)	1 - 1.04
Water Solubility	Complete	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Solubility (Other)	Not available
Density	Not available	Molecular Weight	Not available

Other Information:

No information is available.

SECTION 10 - STABILITY AND REACTIVITY

Reactivity:

No hazardous reaction when handled and stored according to provisions.

Chemical Stability:

Stable under normal conditions of use.

Conditions to Avoid:

None known.

Incompatible Materials:

Electrically energized equipment, water-reactive materials, Strong oxidizer.

Hazardous decomposition products:

None known.

Thermal decomposition products:

Under certain extreme conditions there may be release of toxic and/or corrosive gases. oxides of carbon, oxides of sulfur, oxides of nitrogen, hydrogen fluoride.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity:

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Diethylene glycol monobutyl ether (112-34-5)

Oral LD50 Rat 5660 mg/kg

Dermal LD50 Rabbit 2700 mg/kg

Water (7732-18-5)

Oral LD50 Rat >90 mL/kg

N-Cocamidopropyl-N,N-dimethylglycine, hydroxide, inner salt (61789-40-0)

Oral LD50 Rat 4900 mg/kg

Amides, coco, N-[3-(dimethylamino)propyl] (68140-01-2)

Oral LD50 Rat 200 mg/kg

Immediate Effects

Causes serious eye irritation. May cause mild skin irritation.

Delayed Effects

No information available for the product.

Irritation/Corrosivity Data

Causes serious eye irritation.

Respiratory Sensitization

No information available for the product.

Dermal Sensitization

No information available for the product.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Germ Cell Mutagenicity

No information available for the product.

Tumorigenic Data

No information available for the product.

Reproductive Toxicity

No information available for the product.

Specific Target Organ Toxicity - Single Exposure

No information available for the product.

Specific Target Organ Toxicity - Repeated Exposure

No information available for the product.

Aspiration hazard

No information available for the product.



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Medical Conditions Aggravated by Exposure

No information available for the product.

SECTION 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

<u>Diethylene glycol monobutyl ether</u>	<u>112-34-5</u>
Fish:	LC50 96 h Lepomis macrochirus 1300 mg/L [static]
Algae:	EC50 96 h Desmodesmus subspicatus >100 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna >100 mg/L IUCLID
<u>N-Cocamidopropyl-N,N-dimethylglycine, hydroxide, inner salt</u>	<u>61789-40-0</u>
Fish:	LC50 96 h Brachydanio rerio 2 mg/L [semi-static]
Invertebrate:	EC50 48 h Daphnia magna 6.5 mg/L IUCLID
<u>Ammonium fluoride</u>	<u>12125-01-8</u>
Fish:	LC50 96 h Pimephales promelas 364 mg/L [static]

Persistence and Degradability

No information available for the product.

Bioaccumulative Potential

No information available for the product.

Mobility

No information available for the product.

Other Toxicity

No additional information is available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal Methods:

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14 - TRANSPORT INFORMATION

US DOT Information:

UN/NA #: Not regulated as dangerous goods.

IATA Information:

UN#: Not regulated as dangerous goods.



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IMDG Information:

UN#: Not regulated as dangerous goods.

TDG Information:

UN#: Not regulated as dangerous goods.

SECTION 15 - REGULATORY INFORMATION

U.S. Federal Regulations:

<u>Diethylene glycol monobutyl ether</u>	<u>112-34-5</u>
SARA 313:	1 % de minimis concentration (applies to R-(OCH ₂ CH ₂) _n -OR', where n = 1, 2, or 3, R=Alkyl C7 or less, or R = Phenyl or Alkyl substituted phenyl, R' = H or Alkyl C7 or less, or OR' consisting of Carboxylic acid ester, Sulfate, Phosphate, Nitrate, or Sulfonate, Chemical Category N230) (related to Glycol ethers)
<u>Ammonium fluoride</u>	<u>12125-01-8</u>
SARA 313:	1 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing) (related to Aqueous ammonia from water dissociable ammonium salts and other sources)
CERCLA:	100 lb final RQ; 45.4 kg final RQ

U.S. State Regulations:

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Diethylene glycol monobutyl ether	112-34-5	No	No	No	Yes	Yes
Water	7732-18-5	No	No	No	No	Yes
Ammonium fluoride	12125-01-8	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65.

Canadian WHMIS Ingredient Disclosure List (IDL):

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

<u>Diethylene glycol monobutyl ether</u>	<u>112-34-5</u>
	1 %
<u>Ammonium fluoride</u>	<u>12125-01-8</u>
	1 % (related to Fluorides, inorganic)

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Component Analysis – Inventory:

Diethylene glycol monobutyl ether (112-34-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

Water (7732-18-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes

N-Cocamidopropyl-N,N-dimethylglycine, hydroxide, inner salt (61789-40-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	Yes	Yes	No	Yes

Amides, coco, N-[3-(dimethylamino)propyl] (68140-01-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	No	No	No	No	Yes	Yes	No	Yes

Ammonium fluoride (12125-01-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes

SECTION 16 - OTHER INFORMATION

Key / Legend:

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information:

Disclaimer: Safety data sheet is for concentrate as received NOT for end-use solution.

Section 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name or designation of the mixture	Tridol ATF 3/6
Registration number	-
Synonyms	None.
SDS number	-
Product code	140-05
Date of first issue	15-July-2011
Version number	02
Revision date	03-December-2014
Supersedes date	15-July-2011

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Fire fighting foam concentrate.
Uses advised against	None known.

Details of the supplier of the safety data sheet

Supplier

Company name	Angus Fire Ltd
Address	Station Road Bentham, Lancashire, LA2 7NA
Phone number:	0044 (0)15 2426 4000
e-mail	general.enquiries@angusuk.co.uk
Contact person	EH&S Manager
Emergency telephone number	0044 (0)15 2426 4000 (Standard office hours: Monday to Friday 8:30am - 4:30pm GMT)

Section 2: Hazards identification

Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

This preparation does not meet the criteria for classification according to Directive 1999/45/EC as amended.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards		
Serious eye damage/eye irritation	Category 2	Causes serious eye irritation.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	May cause skin and eye irritation. May cause respiratory tract irritation. May cause central nervous system effects.
Main symptoms	Symptoms can include irritation, redness, scratching of the cornea, and tearing. Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains:	2-(2-Butoxyethoxy)-Ethanol, Poly(oxy-1,2-ethanediyl), .alpha.-sulfo-.omega.-hydroxy-, C9-11-alkyl ethers, sodium salts
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Signal word	Warning
Hazard statements	Causes serious eye irritation.
Precautionary statements	
Prevention	Wear eye/face protection. Wash thoroughly after handling.
Response	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Supplemental label information	None.
Other hazards	Not a PBT or vPvB substance or mixture.

Section 3: Composition/information on ingredients

Mixture

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
2-(2-Butoxyethoxy)-Ethanol	5 - < 10	112-34-5 203-961-6	-	603-096-00-8	#
Classification:	DSD: Xi;R36 CLP: Eye Irrit. 2;H319				
Poly(oxy-1,2-ethanediyl), .alpha.-sulfo-.omega.-hydroxy-, C9-11-alkyl ethers, sodium salts	1 - < 3	96130-61-9	-	-	
Classification:	DSD: Xi;R38-41 CLP: Skin Irrit. 2;H315, Eye Dam. 1;H318				
Cocamidopropyl Betaine	< 1	61789-40-0 263-058-8	-	-	
Classification:	DSD: Xi;R36/38 CLP: Skin Irrit. 2;H315, Eye Irrit. 2;H319				
Water	Balance	7732-18-5 231-791-2	-	-	
Classification:	DSD: - CLP: -				

#: This substance has workplace exposure limit(s).

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
The full text for all R- and H-phrases is displayed in section 16.

Section 4: First aid measures

Description of first aid measures

Inhalation	Move injured person into fresh air and keep person calm under observation. Get medical attention if discomfort persists.
Skin contact	Wash the skin immediately with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if irritation develops and persists.
Ingestion	Immediately rinse mouth and drink plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms can include irritation, redness, scratching of the cornea, and tearing. Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

Section 5: Firefighting measures**General fire hazards**

Product is an extinguishing medium. It does not burn or support combustion.

Extinguishing media**Suitable extinguishing media**

No specific measures are required as this product is a fire extinguishing medium.

Unsuitable extinguishing media

Not applicable.

Special hazards arising from the substance or mixture

Not a fire hazard.

Advice for firefighters**Special protective equipment for firefighters**

Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

Special firefighting procedures

No specific precautions.

Section 6: Accidental release measures**Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Avoid contact with skin and eyes. Avoid inhalation of mists or aerosols. Provide adequate ventilation. Wear protective clothing as described in section 8 of this safety data sheet.

For emergency responders

Use personal protection recommended in Section 8 of the SDS.

Environmental precautions

For large (industrial) releases, prevent spill from entering a waterway.

Methods and material for containment and cleaning up

Absorb spillage with suitable absorbent material. Collect and dispose of spillage as indicated in Section 13.

Reference to other sections

For personal protection, see section 8.
For waste disposal, see section 13.

Section 7: Handling and storage**Precautions for safe handling**

Avoid contact with skin and eyes. Wear appropriate personal protective equipment. Wash hands after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store at temperature below 40°C. Store above freezing. Store away from incompatible materials.

Specific end use(s)

Fire fighting foam concentrate.

Section 8: Exposure controls/personal protection**Control parameters****Occupational exposure limits****Austria. MAK List**

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	MAK	97,5 mg/m3
	STEL	10 ppm
		101,2 mg/m3 15 ppm

Belgium. Exposure Limit Values.

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	101,2 mg/m3
	TWA	15 ppm
		67,5 mg/m3 10 ppm

Czech Republic. OELs. Government Decree 361

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	Ceiling	100 mg/m ³
	TWA	70 mg/m ³

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	VLE	101,2 mg/m ³
	VME	15 ppm
		67,5 mg/m ³
		10 ppm

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	AGW	100 mg/m ³
	TWA	10 ppm 67 mg/m ³

Italy. OELs

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	101,2 mg/m ³
	TWA	15 ppm 67,5 mg/m ³ 10 ppm

Netherlands. OELs (binding)

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	100 mg/m ³
	TWA	50 mg/m ³

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	TLV	10 ppm
		68 mg/m ³

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	100 mg/m ³
	TWA	67 mg/m ³

Hygiene Norm GN 2.2.5.2439-09. Maximum allowable concentration (MAC) of harmful substances in the air of working zones. Executive No. 76 of 30 april 2006. Including Appendixes No.1, 2, 3 and 4.

Components	Type	Value	Form
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	Ceiling	10 mg/m ³	Aerosol

Spain. Occupational Exposure Limits

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	101,2 mg/m ³
	TWA	15 ppm
		67,5 mg/m ³ 10 ppm

Sweden. Occupational Exposure Limit Values

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	200 mg/m ³

Sweden. Occupational Exposure Limit Values

Components	Type	Value
	TWA	30 ppm 100 mg/m ³ 15 ppm

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	101,2 mg/m ³
	TWA	15 ppm 67 mg/m ³ 10 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	STEL	101,2 mg/m ³
	TWA	15 ppm 67,5 mg/m ³ 10 ppm

Recommended monitoring procedures Follow standard monitoring procedures.

DNEL Not available.

PNEC Not available.

Exposure controls

Appropriate engineering controls Ensure adequate ventilation, especially in confined areas. Observe occupational exposure limits and minimise the risk of exposure.

Individual protection measures, such as personal protective equipment

General information Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear approved safety goggles.

Skin protection

- Hand protection Wear suitable gloves. Butyl rubber gloves are recommended. Suitable gloves can be recommended by the glove supplier.

- Other Wear suitable protective clothing.

Respiratory protection In case of inadequate ventilation: Use respiratory equipment with combination filter, type A2/P2.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Handle in accordance with good industrial hygiene and safety practices. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions. Environmental manager must be informed of all major spillages.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid.
Form	Liquid.
Colour	Pale yellow.
Odour	Organic.
Odour threshold	Not available.
pH	6,5 - 8
Melting point/freezing point	Not available.
Boiling point, initial boiling point, and boiling range	100 °C (212 °F) @ 760 mmHg
Flash point	> 98 °C (> 208,4 °F)
Auto-ignition temperature	Not applicable.
Flammability (solid, gas)	Not applicable.
Flammability limit - lower (%)	Not applicable

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Flammability limit - upper (%)	Not applicable
Oxidising properties	Not applicable.
Explosive properties	Not applicable.
Explosive limit	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Relative density	1,014
Solubility (water)	Completely soluble in water.
Partition coefficient (n-octanol/water)	No data available.
Decomposition temperature	Not available.
Viscosity	Not available.
Percent volatile	Not available.
Other information	No relevant additional information available.

Section 10: Stability and reactivity

Reactivity	The product is stable and non reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Contact with incompatible materials. Excessive heat. Freezing (Product properties are unaffected).
Incompatible materials	Alkali metals. Strong oxidising agents. Water reactive materials.
Hazardous decomposition products	Carbon oxides. Sulphur oxides. Hydrogen fluoride. Nitrogen oxides (NOx). Sodium oxides.

Section 11: Toxicological information

General information	The information in this section is for the individual ingredients that are expected to contribute to the potential health effects of this product.	
Information on likely routes of exposure		
Ingestion	May cause discomfort if swallowed.	
Inhalation	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.	
Skin contact	May cause skin irritation.	
Eye contact	Causes serious eye irritation.	
Symptoms	Symptoms can include irritation, redness, scratching of the cornea, and tearing. Symptoms may include redness, oedema, drying, defatting and cracking of the skin.	
Information on toxicological effects		
Acute toxicity	May cause skin and eye irritation. May cause central nervous system effects.	
Components	Test results	
2-(2-Butoxyethoxy)-Ethanol (112-34-5)	Acute Dermal LD50 Rabbit: 2700 mg/kg Acute Oral LD50 Rat: 4500 mg/kg	
Skin corrosion/irritation	Prolonged contact may cause dryness of the skin.	
Serious eye damage/eye irritation	May cause eye irritation. Exposed may experience eye tearing, redness, and discomfort.	
Respiratory sensitisation	No data available.	
Skin sensitisation	Not a skin sensitiser.	
Germ cell mutagenicity	No data available.	
Carcinogenicity	No data available.	
Reproductive toxicity	No data available.	
Specific target organ toxicity - single exposure	No data available.	
Specific target organ toxicity - repeated exposure	No data available.	

Aspiration hazard	No data available.
Mixture versus substance information	None known.
Other information	Persons with pre-existing skin disorders may be more susceptible to the effects of the product. Prolonged contact may cause dryness of the skin.

Section 12: Ecological information

Toxicity

Product	Test results
Tridol ATF 3/6 (Mixture)	LC50 Daphnia magna: 3000 ppm 24 hours
Persistence and degradability	The product is biodegradable. COD: 0,28 gg-1 BOD: 0,023 gg-1/5 days.
Bioaccumulative potential	The product is not expected to bioaccumulate.
Mobility	The product is water soluble and may spread in water systems.
Environmental fate - Partition coefficient	No data available.
Mobility in soil	No data available.
Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
Other adverse effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13: Disposal considerations

Waste treatment methods

Residual waste	Dispose of waste and residues in accordance with local authority requirements.
Contaminated packaging	Dispose of in accordance with local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	16 03 05* Waste codes should be assigned by the user based on the application for which the product was used.
Disposal methods/information	Dispose of waste and residues in accordance with local authority requirements.

Section 14: Transport information

ADR

The product is not covered by international regulation on the transport of dangerous goods.

RID

The product is not covered by international regulation on the transport of dangerous goods.

ADN

The product is not covered by international regulation on the transport of dangerous goods.

IATA

The product is not covered by international regulation on the transport of dangerous goods.

IMDG

The product is not covered by international regulation on the transport of dangerous goods.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code No information available.

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3
Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V
Not listed.

Directive 96/61/EC concerning integrated pollution prevention and control (IPPC): Article 15, European Pollution
Emission Registry (EPER)

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1). Candidate List

Not listed.

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations

Follow national regulation for work with chemical agents.

Chemical safety assessment

No Chemical Safety Assessment has been carried out.

Section 16: Other information

List of abbreviations

DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative.

References

HSDB
IUCLID
RTECS (2010)

**Information on evaluation
method leading to the
classification of mixture**

The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.

**Full text of any statements or
R-phrases and H-phrases
under Sections 2 to 15**

R36 Irritating to eyes.
R36/38 Irritating to eyes and skin.
R38 Irritating to skin.
R41 Risk of serious damage to eyes.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H319 - Causes serious eye irritation.

Training information

Follow training instructions when handling this material.

Disclaimer

This information is based on our current knowledge and is believed to be correct as of the date issued. The information is intended to describe the product for the purposes of health, safety and environmental requirements only and no warranty, express or implied, is made. It should also not be construed as guaranteeing any specific property of the product. In addition, information obtained from a database is subject to change and may not be as current as the information in the MSDS available directly from Angus Fire.

Appendix F – Analytical Results



		UW	QCD UW	QCD UW	UW/QCD	UW/QCD
Project: SJOT6 Yatala Water Treatment Plant		923521	923521	923521	RPD	RPD
Table: TOPA Untreated Ampol Baseline		SJO6_HQ_BL1	SJO6_HQ_BL2	SJO6_HQ_BL3		
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)	Unit	14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05	< 0.05	< 0.05	0	0
Perfluoroalkyl carboxylic acids (PFCA)						
Perfluorobutanoic acid (PFBA)	µg/L	0.35	0.34	0.31	3	12
Perfluorodecanoic acid (PFDA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.17	0.15	0.14	13	19
Perfluorohexanoic acid (PFHxA)	µg/L	0.43	0.38	0.36	12	18
Perfluorononanoic acid (PFNA)	µg/L	0.03	0.02	0.02	40	40
Perfluorooctanoic acid (PFOA)	µg/L	0.14	0.13	0.12	7	15
Perfluoropentanoic acid (PFPeA)	µg/L	0.47	0.43	0.4	9	16
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.05	< 0.05	< 0.05	0	0
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.05	< 0.05	< 0.05	0	0
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05	< 0.05	< 0.05	0	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	0	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05	< 0.05	< 0.05	0	0
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	0	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05	< 0.05	< 0.05	0	0
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.1	0.09	0.09	11	11
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	0.1	0.07	0.07	35	35
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.96	0.76	0.77	23	22



		UW	QCD UW	QCD UW	UW/QCD	UW/QCD
Project: SJOT6 Yatala Water Treatment Plant		923521	923521	923521	RPD	RPD
Table: TOPA Untreated Ampol Baseline		SJO6_HQ_BL1	SJO6_HQ_BL2	SJO6_HQ_BL3		
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)	Unit	14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01	< 0.01	< 0.01	0	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	1.5	1.2	1.1	22	31
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.11	0.1	0.09	10	20
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.05	0.05	0.04	0	22
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L	2.46	1.96	1.87	23	27
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	2.6	2.09	1.99	22	27
Sum of PFASs (n=30)*	µg/L	4.41	3.72	3.51	17	23
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	1.64	1.33	1.22	21	29
Sum of WA DWER PFAS (n=10)*	µg/L	4.12	3.48	3.29	17	22

Project: SJOT6 Yatala Water Treatment Plant			923521	923521	923521	DW/QCD	DW/QCT
Table: Baseline Results for 3 IBCS Ampol Wastewater		EA0002264	SJO6_HQ_BL1	SJO6_HQ_BL2	SJO6_HQ_BL3	RPD	RPD
	Unit	Maximum Limit	14/09/2022	14/09/2022	14/09/2022		
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluoroalkyl sulfonamido substances							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFO)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-Me)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFO)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.1	< 0.1	< 0.1	0	0
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0

Project: SJOT6 Yatala Water Treatment Plant			923521	923521	923521	DW/QCD	DW/QCT
Table: Baseline Results for 3 IBCS Ampol Wastewater		EA0002264	SJO6_HQ_BL1	SJO6_HQ_BL2	SJO6_HQ_BL3	RPD	RPD
	Unit	Maximum Limit	14/09/2022	14/09/2022	14/09/2022		
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.68	0.49	0.59	32	14
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	1.4	1.4	1.2	0	15
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.1	0	0
PFASs Summations							
Sum (PFHxS + PFOS)*	µg/L		2.08	1.89	1.79		
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		2.08	1.89	1.79		
Sum of PFASs (n=30)*	µg/L		2.08	1.89	1.79		
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		1.4	1.4	1.2		
Sum of WA DWER PFAS (n=10)*	µg/L		2.08	1.89	1.79		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/L		17	18	21	6	21
TRH C10-C36 (Total)	mg/L		61.9	56.8	62.8	9	1
TRH C15-C28	mg/L		41	35	38	16	8
TRH C29-C36	mg/L		3.9	3.8	3.8	3	3
TRH C6-C9	mg/L		12	9.8	8.4	20	35
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	0	0
TRH >C10-C16	mg/L		23	22	22	4	4
TRH >C10-C16 less Naphthalene (F2)	mg/L		23	22	22	4	4
TRH >C10-C40 (total)*	mg/L		60.5	55.5	57.6	9	5
TRH >C16-C34	mg/L		36	32	34	12	6
TRH >C34-C40	mg/L		1.5	1.5	1.6	0	6
TRH C6-C10	mg/L		13	10	8.8	26	39
TRH C6-C10 less BTEX (F1)	mg/L		13	10	8.8	26	39
Chloride	mg/L		1400	1300	1400	7	0
Dissolved Organic Carbon	mg/L		240	320	330	29	32

Project: SJOT6 Yatala Water Treatment Plant			923521	923521	923521	DW/QCD	DW/QCT
Table: Baseline Results for 3 IBCS Ampol Wastewater		EA0002264	SJO6_HQ_BL1	SJO6_HQ_BL2	SJO6_HQ_BL3	RPD	RPD
	Unit	Maximum Limit	14/09/2022	14/09/2022	14/09/2022		
Nitrate & Nitrite (as N)	mg/L		0.85	0.81	0.8	5	6
pH (at 25 °C)	pH units		12	12	12	0	0
Phosphate total (as P)	mg/L		3.3	3	2.6	10	24
Sulphate (as SO4)	mg/L		64	72	46	12	33
Total Kjeldahl Nitrogen (as N)	mg/L		42	110	38	89	10
Total Nitrogen (as N)*	mg/L		42.85	110.81	38.8	88	10
Total Organic Carbon	mg/L		400	350	360	13	11
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		6.7	< 5	6.2	29	8
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	0	0
Carbonate Alkalinity (as CaCO3)	mg/L		2800	5500	3100	65	10
Hydroxide Alkalinity (as CaCO3)	mg/L		900	550	960	48	6
Total Alkalinity (as CaCO3)	mg/L		3700	6100	4100	49	10
BTEX							
Benzene	mg/L		0.021	0.018	0.011	15	63
Ethylbenzene	mg/L		< 0.01	< 0.01	< 0.01	0	0
m&p-Xylenes	mg/L		< 0.02	< 0.02	< 0.02	0	0
o-Xylene	mg/L		< 0.01	< 0.01	< 0.01	0	0
Toluene	mg/L		0.02	0.016	0.014	22	35
Xylenes - Total*	mg/L		< 0.03	< 0.03	< 0.03	0	0
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L		11	< 5	< 5	75	0
Magnesium	mg/L		< 5	< 5	< 5	0	0
Potassium	mg/L		270	250	250	8	8
Sodium	mg/L		8700	8800	8900	1	2
Heavy Metals							
Arsenic	mg/L		0.33	0.3	0.29	10	13
Cadmium	mg/L		0.0006	< 0.0002	< 0.0002	100	100
Chromium	mg/L		0.007	< 0.001	< 0.001	150	150



Untreated Water
SJ06_HQ_BL1

Untreated Water
SJ06_HQ_BL1

Project: SJOT6 Yatala Water Treatment Plant			923521	923521	923521	DW/QCD	DW/QCT
Table: Baseline Results for 3 IBCS Ampol Wastewater		EA0002264	SJO6_HQ_BL1	SJO6_HQ_BL2	SJO6_HQ_BL3	RPD	RPD
	Unit	Maximum Limit	14/09/2022	14/09/2022	14/09/2022		
Copper	mg/L		0.12	< 0.001	0.001	197	197
Lead	mg/L		0.057	< 0.001	< 0.001	193	193
Nickel	mg/L		0.65	0.59	0.57	10	13
Zinc	mg/L		0.33	< 0.005	0.037	194	160
pH							
pH	pH units		11.6	12.3	13	6	11

Project: SJOT6 Yatala Water Treatment Plant		926037
Table: Untreated SLR Baseline	Unit	SJO6_HQ_BL2
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)		21/09/2022
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05
Perfluoroalkyl carboxylic acids (PFCA)		
Perfluorobutanoic acid (PFBA)	µg/L	0.09
Perfluorodecanoic acid (PFDA)	µg/L	< 0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.11
Perfluorohexanoic acid (PFHxA)	µg/L	0.23
Perfluorononanoic acid (PFNA)	µg/L	0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.08
Perfluoropentanoic acid (PFPeA)	µg/L	0.21
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.01
Perfluoroalkyl sulfonamido substances		
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05
Perfluoroalkyl sulfonic acids (PFSA)		
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.01
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.17
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.51
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.01
PFASs Summations		
Sum (PFHxS + PFOS)*	µg/L	0.68
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.76
Sum of PFASs (n=30)*	µg/L	1.46
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.59
Sum of WA DWER PFAS (n=10)*	µg/L	1.42

Project: SJOT6 Yatala Water Treatment Plant			926037
Table: Baseline Results for SLR		EA0002264	SJO6_2_BL
	Unit	Maximum Limit	21/09/2022
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.038
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	0.071
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.11
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.11
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.23
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.032
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.092
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFO)	µg/L	< 0.005	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-Me)	µg/L	< 0.005	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOS)	µg/L	< 0.005	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.01
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.016
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.2
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.47
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.011
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001
PFASs Summations			
Sum (PFHxS + PFOS)*	µg/L		0.67
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.762
Sum of PFASs (n=30)*	µg/L		1.39
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.562
Sum of WA DWER PFAS (n=10)*	µg/L		1.331

Project: SJOT6 Yatala Water Treatment Plant			926037
Table: Baseline Results for SLR		EA0002264	SJO6_2_BL
	Unit	Maximum Limit	21/09/2022
Analytes			
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		
Chemical Oxygen Demand (COD)	mg/L		
Chloride	mg/L		200
Dissolved Organic Carbon	mg/L		13
Nitrate & Nitrite (as N)	mg/L		0.39
Phosphate total (as P)	mg/L		0.35
Sulphate (as SO ₄)	mg/L		19
Total Kjeldahl Nitrogen (as N)	mg/L		2.2
Total Nitrogen (as N)*	mg/L		2.59
Total Organic Carbon	mg/L		20
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		150
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	mg/L		390
Carbonate Alkalinity (as CaCO ₃)	mg/L		< 10
Hydroxide Alkalinity (as CaCO ₃)	mg/L		< 20
Total Alkalinity (as CaCO ₃)	mg/L		390
BTEX			
Benzene	mg/L		< 0.001
Ethylbenzene	mg/L		< 0.001
m&p-Xylenes	mg/L		< 0.002
o-Xylene	mg/L		< 0.001
Toluene	mg/L		< 0.001
Xylenes - Total*	mg/L		< 0.003
Chlorinated Hydrocarbons			
1,2,3,4-Tetrachlorobenzene	mg/L		
1,2,3,5-Tetrachlorobenzene	mg/L		
1,2,3-Trichlorobenzene	mg/L		
1,2,4,5-Tetrachlorobenzene	mg/L		
1,2,4-Trichlorobenzene	mg/L		
1,2-Dichlorobenzene	mg/L		
1,3,5-Trichlorobenzene	mg/L		
1,3-Dichlorobenzene	mg/L		
1,4-Dichlorobenzene	mg/L		
Benzal chloride	mg/L		
Benzotrichloride	mg/L		
Benzyl chloride	mg/L		
Hexachlorobenzene	mg/L		
Hexachlorobutadiene	mg/L		
Hexachlorocyclopentadiene	mg/L		



Project: SJOT6 Yatala Water Treatment Plant			926037
Table: Baseline Results for SLR		EA0002264	SJO6_2_BL
	Unit	Maximum Limit	21/09/2022
Hexachloroethane	mg/L		
Pentachlorobenzene	mg/L		
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	mg/L		40
Magnesium	mg/L		23
Potassium	mg/L		12
Sodium	mg/L		210
Heavy Metals			
Arsenic	mg/L		0.006
Cadmium	mg/L		< 0.0002
Chromium	mg/L		< 0.001
Copper	mg/L		0.006
Lead	mg/L		0.012
Nickel	mg/L		0.002
Zinc	mg/L		0.21
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene	mg/L		< 0.01
TRH >C10-C16	mg/L		2.4
TRH >C10-C16 less Naphthalene (F2)	mg/L		2.4
TRH >C10-C40 (total)*	mg/L		6
TRH >C16-C34	mg/L		3.6
TRH >C34-C40	mg/L		< 0.1
TRH C6-C10	mg/L		0.95
TRH C6-C10 less BTEX (F1)	mg/L		0.95
pH (in-situ)			
	pH		8.1

Project: SJOT6 Yatala Water Treatment Plant			898243
Table: Baseline Results for 5 Composite		EA0002264	SJO6_BL003
	Unit	Maximum Limit	10/05/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.37
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.011
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	1.6
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.062
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.006
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.034
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.26
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.024
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.09
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.092
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTTrDA)	µg/L	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	0.005
Perfluoroalkyl sulfonamido substances			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFO)	µg/L	< 0.005	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-Me)	µg/L	< 0.005	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOS)	µg/L	< 0.005	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.018
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.033
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.23
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	3.2
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.013
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	0.005
PFASs Summations			
Sum (PFHxS + PFOS)*	µg/L		3.43
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		3.52
Sum of PFASs (n=30)*	µg/L		6.053
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		3.29
Sum of WA DWER PFAS (n=10)*	µg/L		5.956



Project: SJOT6 Yatala Water Treatment Plant			898243
Table: Baseline Results for 5 Composite		EA0002264	SJO6_BL003
	Unit	Maximum Limit	10/05/2023
Analytes			
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		94
Chemical Oxygen Demand (COD)	mg/L		230
Chloride	mg/L		340
Dissolved Organic Carbon	mg/L		75
Nitrate & Nitrite (as N)	mg/L		0.41
Phosphate total (as P)	mg/L		0.11
Sulphate (as SO ₄)	mg/L		150
Total Kjeldahl Nitrogen (as N)	mg/L		14
Total Nitrogen (as N)*	mg/L		14.41
Total Organic Carbon	mg/L		92
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		58
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	mg/L		150
Carbonate Alkalinity (as CaCO ₃)	mg/L		< 20
Hydroxide Alkalinity (as CaCO ₃)	mg/L		< 20
Total Alkalinity (as CaCO ₃)	mg/L		150
BTEX			
Benzene	mg/L		< 0.001
Ethylbenzene	mg/L		< 0.001
m&p-Xylenes	mg/L		0.008
o-Xylene	mg/L		0.006
Toluene	mg/L		0.006
Xylenes - Total*	mg/L		0.014
Chlorinated Hydrocarbons			
1,2,3,4-Tetrachlorobenzene	mg/L		< 0.005
1,2,3,5-Tetrachlorobenzene	mg/L		< 0.005
1,2,3-Trichlorobenzene	mg/L		< 0.005
1,2,4,5-Tetrachlorobenzene	mg/L		< 0.005
1,2,4-Trichlorobenzene	mg/L		< 0.005
1,2-Dichlorobenzene	mg/L		< 0.005
1,3,5-Trichlorobenzene	mg/L		< 0.005
1,3-Dichlorobenzene	mg/L		< 0.005
1,4-Dichlorobenzene	mg/L		< 0.005
Benzal chloride	mg/L		< 0.0001
Benzotrichloride	mg/L		< 0.0001
Benzyl chloride	mg/L		< 0.005
Hexachlorobenzene	mg/L		< 0.005
Hexachlorobutadiene	mg/L		< 0.005
Hexachlorocyclopentadiene	mg/L		< 0.005



Project: SJOT6 Yatala Water Treatment Plant			898243
Table: Baseline Results for 5 Composite		EA0002264	SJO6_BL003
	Unit	Maximum Limit	10/05/2023
Hexachloroethane	mg/L		< 0.005
Pentachlorobenzene	mg/L		< 0.005
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	mg/L		51
Magnesium	mg/L		4.7
Potassium	mg/L		110
Sodium	mg/L		220
Heavy Metals			
Arsenic	mg/L		0.018
Cadmium	mg/L		0.0004
Chromium	mg/L		0.11
Copper	mg/L		0.033
Lead	mg/L		0.14
Nickel	mg/L		0.01
Zinc	mg/L		0.82
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene	mg/L		< 0.01
TRH >C10-C16	mg/L		8
TRH >C10-C16 less Naphthalene (F2)	mg/L		8.4
TRH >C10-C40 (total)*	mg/L		8.8
TRH >C16-C34	mg/L		0.4
TRH >C34-C40	mg/L		< 0.1
TRH C6-C10	mg/L		0.13
TRH C6-C10 less BTEX (F1)	mg/L		0.11
pH (in-situ)			
	pH		8.2

Project: SJOT6 Yatala Water Treatment Plant			1011653
Table: Baseline Results for Brisbane Airport		EA0002264	SJ06_BL005
	Unit	Maximum Limit	27/07/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.21
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	0.014
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.004
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	2.5
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.27
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.15
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.98
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.044
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.12
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.96
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTTrDA)	µg/L	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	0.007
Perfluoroalkyl sulfonamido substances			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFO)	µg/L	< 0.005	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-Me)	µg/L	< 0.005	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOS)	µg/L	< 0.005	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.008
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.044
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.38
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.003
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001
PFASs Summations			
Sum (PFHxS + PFOS)*	µg/L		0.424
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.544
Sum of PFASs (n=30)*	µg/L		5.714
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.5
Sum of WA DWER PFAS (n=10)*	µg/L		5.622

Project: SJOT6 Yatala Water Treatment Plant			1011653
Table: Baseline Results for Brisbane Airport		EA0002264	SJ06_BL005
	Unit	Maximum Limit	27/07/2023
Analytes			
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		< 5
Chemical Oxygen Demand (COD)	mg/L		75
Chloride	mg/L		160
Dissolved Organic Carbon	mg/L		17
Nitrate & Nitrite (as N)	mg/L		0.38
Phosphate total (as P)	mg/L		2.7
Sulphate (as SO ₄)	mg/L		110
Total Kjeldahl Nitrogen (as N)	mg/L		32
Total Nitrogen (as N)*	mg/L		32.38
Total Organic Carbon	mg/L		< 5
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		110
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	mg/L		130
Carbonate Alkalinity (as CaCO ₃)	mg/L		< 20
Hydroxide Alkalinity (as CaCO ₃)	mg/L		< 20
Total Alkalinity (as CaCO ₃)	mg/L		130
BTEX			
Benzene	mg/L		< 0.001
Ethylbenzene	mg/L		< 0.001
m&p-Xylenes	mg/L		< 0.002
o-Xylene	mg/L		< 0.001
Toluene	mg/L		0.004
Xylenes - Total*	mg/L		< 0.003
Chlorinated Hydrocarbons			
1,2,3,4-Tetrachlorobenzene	mg/L		< 0.005
1,2,3,5-Tetrachlorobenzene	mg/L		< 0.005
1,2,3-Trichlorobenzene	mg/L		< 0.005
1,2,4,5-Tetrachlorobenzene	mg/L		< 0.005
1,2,4-Trichlorobenzene	mg/L		< 0.005
1,2-Dichlorobenzene	mg/L		< 0.005
1,3,5-Trichlorobenzene	mg/L		< 0.005
1,3-Dichlorobenzene	mg/L		< 0.005
1,4-Dichlorobenzene	mg/L		< 0.005
Benzal chloride	mg/L		< 0.0001
Benzotrichloride	mg/L		< 0.0001
Benzyl chloride	mg/L		< 0.005
Hexachlorobenzene	mg/L		< 0.005
Hexachlorobutadiene	mg/L		< 0.005
Hexachlorocyclopentadiene	mg/L		< 0.005



Project: SJOT6 Yatala Water Treatment Plant			1011653
Table: Baseline Results for Brisbane Airport		EA0002264	SJ06_BL005
	Unit	Maximum Limit	27/07/2023
Hexachloroethane	mg/L		< 0.005
Pentachlorobenzene	mg/L		< 0.005
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	mg/L		50
Magnesium	mg/L		17
Potassium	mg/L		38
Sodium	mg/L		80
Heavy Metals			
Arsenic	mg/L		0.004
Cadmium	mg/L		0.0005
Chromium	mg/L		0.003
Copper	mg/L		0.066
Lead	mg/L		0.016
Nickel	mg/L		0.008
Zinc	mg/L		9.1
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene	mg/L		< 0.01
TRH >C10-C16	mg/L		< 0.05
TRH >C10-C16 less Naphthalene (F2)	mg/L		< 0.05
TRH >C10-C40 (total)*	mg/L		< 0.1
TRH >C16-C34	mg/L		< 0.1
TRH >C34-C40	mg/L		< 0.1
TRH C6-C10	mg/L		0.03
TRH C6-C10 less BTEX (F1)	mg/L		0.03
pH (in-situ)			
	pH		7.9

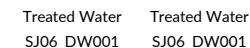
Project: SJOT6 Yatala Water Treatment Plant			1016190
Table: Baseline Results for Brisbane Airport		EA0002264	SJ06_BL006
	Unit	Maximum Limit	10/08/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.7
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	0.002
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.012
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.087
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.004
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.045
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.24
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.011
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.063
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.11
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	0.002
Perfluoroalkyl sulfonamido substances			
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFO)	µg/L	< 0.005	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-Me)	µg/L	< 0.005	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOS)	µg/L	< 0.005	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.018
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.019
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.095
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	1.5
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.006
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	0.004
PFASs Summations			
Sum (PFHxS + PFOS)*	µg/L		1.595
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		1.658
Sum of PFASs (n=30)*	µg/L		2.918
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		1.563
Sum of WA DWER PFAS (n=10)*	µg/L		2.858

Project: SJOT6 Yatala Water Treatment Plant			1016190
Table: Baseline Results for Brisbane Airport		EA0002264	SJ06_BL006
	Unit	Maximum Limit	10/08/2023
Analytes			
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		< 100
Chemical Oxygen Demand (COD)	mg/L		45
Chloride	mg/L		120
Dissolved Organic Carbon	mg/L		
Nitrate & Nitrite (as N)	mg/L		< 0.05
Phosphate total (as P)	mg/L		0.69
Sulphate (as SO ₄)	mg/L		110
Total Kjeldahl Nitrogen (as N)	mg/L		19
Total Nitrogen (as N)*	mg/L		19
Total Organic Carbon	mg/L		
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		8
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	mg/L		340
Carbonate Alkalinity (as CaCO ₃)	mg/L		< 20
Hydroxide Alkalinity (as CaCO ₃)	mg/L		< 20
Total Alkalinity (as CaCO ₃)	mg/L		340
BTEX			
Benzene	mg/L		< 0.001
Ethylbenzene	mg/L		< 0.001
m&p-Xylenes	mg/L		< 0.002
o-Xylene	mg/L		0.001
Toluene	mg/L		0.002
Xylenes - Total*	mg/L		< 0.003
Chlorinated Hydrocarbons			
1,2,3,4-Tetrachlorobenzene	mg/L		< 0.005
1,2,3,5-Tetrachlorobenzene	mg/L		< 0.005
1,2,3-Trichlorobenzene	mg/L		< 0.005
1,2,4,5-Tetrachlorobenzene	mg/L		< 0.005
1,2,4-Trichlorobenzene	mg/L		< 0.005
1,2-Dichlorobenzene	mg/L		< 0.005
1,3,5-Trichlorobenzene	mg/L		< 0.005
1,3-Dichlorobenzene	mg/L		< 0.005
1,4-Dichlorobenzene	mg/L		< 0.005
Benzal chloride	mg/L		< 0.0001
Benzotrichloride	mg/L		< 0.0001
Benzyl chloride	mg/L		< 0.005
Hexachlorobenzene	mg/L		< 0.005
Hexachlorobutadiene	mg/L		< 0.005
Hexachlorocyclopentadiene	mg/L		< 0.005



Project: SJOT6 Yatala Water Treatment Plant			1016190
Table: Baseline Results for Brisbane Airport		EA0002264	SJ06_BL006
	Unit	Maximum Limit	10/08/2023
Hexachloroethane	mg/L		< 0.005
Pentachlorobenzene	mg/L		< 0.005
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	mg/L		43
Magnesium	mg/L		14
Potassium	mg/L		21
Sodium	mg/L		210
Heavy Metals			
Arsenic	mg/L		0.006
Cadmium	mg/L		< 0.0002
Chromium	mg/L		< 0.001
Copper	mg/L		< 0.001
Lead	mg/L		0.014
Nickel	mg/L		< 0.001
Zinc	mg/L		0.008
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene	mg/L		< 0.01
TRH >C10-C16	mg/L		0
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.21
TRH >C10-C40 (total)*	mg/L		0.41
TRH >C16-C34	mg/L		0.2
TRH >C34-C40	mg/L		< 0.1
TRH C6-C10	mg/L		0.07
TRH C6-C10 less BTEX (F1)	mg/L		0.07
pH (in-situ)			
	pH		7.7

Project: SJOT6 Yatala Water Treatment Plant			940995	940995	940995	940995	940995	940995	940995	DW/QCD	DW/QCT
Table: Treated Batch 1 Ampol Washwater		EA0002264	SJO6_UW001	SJO6_PW001	SJO6_TW001	SJO6_QW001	SJO6_DW001	SJO6_QCD001	SJO6_QCT001	RPD	RPD
	Unit	Maximum Limit	14/11/2022	14/11/2022	14/11/2022	14/11/2022	14/11/2022	14/11/2022	14/11/2022		
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)											
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.26	0.24	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0	0
Perfluoroalkyl carboxylic acids (PFCA)											
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0	0
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.11	0.11	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.25	0.23	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.05	0.045	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.13	0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoroalkyl sulfonamido substances											
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0	0
Perfluoroalkyl sulfonic acids (PFSA)											
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.17	0.078	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.82	0.68	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	3.9	0.97	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
PFASs Summations											
Sum (PFHxS + PFOS)*	µg/L		4.72	1.65	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		4.85	1.75	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Sum of PFASs (n=30)*	µg/L		5.69	2.453	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0	0
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		4.03	1.07	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0	0
Sum of WA DWER PFAS (n=10)*	µg/L		5.47	2.33	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0	0
Additional Per- and Polyfluoroalkyl Substances (PFAS)											
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	µg/L				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	0
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	µg/L				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	0
Perfluoroethylcyclohexane sulfonate (PFECBS)	µg/L				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	0
Analytes											
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		89								



Treated Water	Treated Water
SJ06 DW001	SJ06 DW001



Treated Water
SJ06_DW001

Treated Water
SJ06_DW001

Project: SJOT6 Yatala Water Treatment Plant			940995	940995	940995	940995	940995	940995	940995	DW/QCD	DW/QCT
Table: Treated Batch 1 Ampol Washwater		EA0002264	SJO6_UW001	SJO6_PW001	SJO6_TW001	SJO6_QW001	SJO6_DW001	SJO6_QCD001	SJO6_QCT001	RPD	RPD
	Unit	Maximum Limit	14/11/2022	14/11/2022	14/11/2022	14/11/2022	14/11/2022	14/11/2022	14/11/2022		
Arsenic	mg/L		0.2	0.25	0.036		0.019				
Cadmium	mg/L		< 0.0002	< 0.0002	< 0.0002		< 0.0002				
Chromium	mg/L		0.018	0.026	0.018		0.029				
Copper	mg/L		0.067	0.003	< 0.001		0.005				
Lead	mg/L		0.027	0.014	< 0.001		< 0.001				
Nickel	mg/L		0.83	0.79	0.012		0.008				
Zinc	mg/L		0.36	0.8	< 0.005		< 0.005				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions											
Naphthalene	mg/L		0.53	< 0.01	< 0.01		< 0.01				
TRH >C10-C16	mg/L		0.95	17	< 0.05		< 0.05				
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.42	17	< 0.05		< 0.05				
TRH >C10-C40 (total)*	mg/L		2.15	38.1	0.8		0.1				
TRH >C16-C34	mg/L		1.2	19	0.3		< 0.1				
TRH >C34-C40	mg/L		< 0.1	2.1	0.5		0.1				
TRH C6-C10	mg/L		1.4	1.4	< 0.01		< 0.01				
TRH C6-C10 less BTEX (F1)	mg/L		1.3	1.4	< 0.01		< 0.01				
pH											
pH	pH units		12.5								

Project: SJOT6 Yatala Water Treatment Plant			945110	945110	945110	945906 945909
Table: Treated Batch 2 Ampol Washwater		EA0002264	SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
	Unit	Maximum Limit	29/11/2022	29/11/2022	29/11/2022	29/11/2022
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.5	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.005	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTTrDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.5	< 0.5	< 0.002	< 0.002
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			945110	945110	945110	945906 945909
Table: Treated Batch 2 Ampol Washwater		EA0002264	SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
	Unit	Maximum Limit	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.43	< 0.1	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	2.1	2.5	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L		2.53	2.5	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		2.53	2.5	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		2.53	2.5	< 0.005	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		2.1	2.5	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		2.53	2.5	< 0.005	< 0.005
Analytes						
Chemical Oxygen Demand (COD)	mg/L		2800			
Chloride	mg/L		1500	1200	1100	24
Dissolved Organic Carbon	mg/L		230	680	240	< 5
Nitrate & Nitrite (as N)	mg/L		0.72			
Phosphate total (as P)	mg/L		1.9			
Sulphate (as SO4)	mg/L		87	1700	99	9.5
Total Kjeldahl Nitrogen (as N)	mg/L		39			
Total Nitrogen (as N)*	mg/L		39.72			
Total Organic Carbon	mg/L		240	830	240	< 5
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		750	69	6.8	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	mg/L		< 20	2700	1700	58
Carbonate Alkalinity (as CaCO3)	mg/L		5800	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	mg/L		640	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	mg/L		6500	2700	1700	58

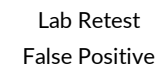


Project: SJOT6 Yatala Water Treatment Plant			945110	945110	945110	945906 945909
Table: Treated Batch 2 Ampol Washwater		EA0002264	SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
	Unit	Maximum Limit	29/11/2022	29/11/2022	29/11/2022	29/11/2022
BTEX						
Benzene	mg/L		0.008	0.002	< 0.001	< 0.001
Ethylbenzene	mg/L		0.016	0.005	< 0.001	< 0.001
m&p-Xylenes	mg/L		0.078	0.019	< 0.002	< 0.002
o-Xylene	mg/L		0.067	0.013	< 0.001	< 0.001
Toluene	mg/L		0.036	0.012	< 0.001	< 0.001
Xylenes - Total*	mg/L		0.14	0.032	< 0.003	< 0.003
Chlorinated Hydrocarbons						
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3-Trichlorobenzene	mg/L		< 0.005			
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.4-Trichlorobenzene	mg/L		< 0.005			
1.2-Dichlorobenzene	mg/L		< 0.005			
1.3.5-Trichlorobenzene	mg/L		< 0.005			
1.3-Dichlorobenzene	mg/L		< 0.005			
1.4-Dichlorobenzene	mg/L		< 0.005			
Benzal chloride	mg/L		< 0.0001			
Benzotrichloride	mg/L		< 0.0001			
Benzyl chloride	mg/L		< 0.005			
Hexachlorobenzene	mg/L		< 0.005			
Hexachlorobutadiene	mg/L		< 0.005			
Hexachlorocyclopentadiene	mg/L		< 0.005			
Hexachloroethane	mg/L		< 0.005			
Pentachlorobenzene	mg/L		< 0.005			
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	mg/L		4.2	< 1	2.7	4.9
Magnesium	mg/L		< 1	1.3	7.3	2.4



Project: SJOT6 Yatala Water Treatment Plant			945110	945110	945110	945906 945909
Table: Treated Batch 2 Ampol Washwater		EA0002264	SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
	Unit	Maximum Limit	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Potassium	mg/L		260	160	9.1	1.5
Sodium	mg/L		7300	3000	1400	27
Heavy Metals						
Arsenic	mg/L		0.29	0.096	0.071	< 0.001
Cadmium	mg/L		0.0005	< 0.0002	< 0.0002	< 0.0002
Chromium	mg/L		0.19	0.021	0.068	< 0.001
Copper	mg/L		0.87	0.004	0.006	< 0.001
Lead	mg/L		0.23	0.008	< 0.001	< 0.001
Nickel	mg/L		2.2	0.78	0.21	< 0.001
Zinc	mg/L		2.1	0.19	0.029	0.006
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	mg/L		0.09	0.02	< 0.01	< 0.01
TRH >C10-C16	mg/L		10	7.8	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)	mg/L		9.91	7.78	< 0.05	< 0.05
TRH >C10-C40 (total)*	mg/L		38.3	13.3	< 0.1	< 0.1
TRH >C16-C34	mg/L		27	5.5	< 0.1	< 0.1
TRH >C34-C40	mg/L		1.3	< 0.1	< 0.1	< 0.1
TRH C6-C10	mg/L		6.5	0.89	< 0.01	< 0.01
TRH C6-C10 less BTEX (F1)	mg/L		6.3	0.84	< 0.01	< 0.01
pH						
pH	pH units		11.9			

Project: SJOT6 Yatala Water Treatment Plant			948107	948107	948107	948110 948107	948110 948107
Table: Treated Batch 3 Ampol Washwater		EA0002264	SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003	SJO6_DW003
	Unit	Maximum Limit	7/12/2022	7/12/2022	7/12/2022	7/12/2022	7/12/2022
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.009	0.021	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	0.53	0.28	< 0.005	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.004	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.008	0.028	< 0.001	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.005	0.014	< 0.001	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.008	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.009	0.033	< 0.001	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			948107	948107	948107	948110 948107	948110 948107
Table: Treated Batch 3 Ampol Washwater		EA0002264	SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003	SJO6_DW003
	Unit	Maximum Limit	7/12/2022	7/12/2022	7/12/2022	7/12/2022	7/12/2022
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.012	0.19	< 0.001	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.055	0.24	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
PFASs Summations							
Sum (PFHxS + PFOS)*	µg/L		0.067	0.43	< 0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.072	0.444	< 0.001	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		0.665	0.812	< 0.005	< 0.005	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.06	0.254	< 0.001	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		0.656	0.773	< 0.005	< 0.005	< 0.005
Analytes							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L						
Chemical Oxygen Demand (COD)	mg/L		59				
Chloride	mg/L		410	1100	1300	1100	1100
Dissolved Organic Carbon	mg/L		20	1800	870	820	820
Nitrate & Nitrite (as N)	mg/L		0.87				
Phosphate total (as P)	mg/L		0.39				
Sulphate (as SO4)	mg/L		1100	750	490	520	520
Total Kjeldahl Nitrogen (as N)	mg/L		2				
Total Nitrogen (as N)*	mg/L		2.87				
Total Organic Carbon	mg/L		17	1800	890	940	940
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		700	280	14	16	16
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L		31	1200	3700	2200	2200
Carbonate Alkalinity (as CaCO3)	mg/L		< 10	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	mg/L		31	1200	3700	2200	2200
BTEX							

Project: SJOT6 Yatala Water Treatment Plant			948107	948107	948107	948110 948107	948110 948107
Table: Treated Batch 3 Ampol Washwater		EA0002264	SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003	SJO6_DW003
	Unit	Maximum Limit	7/12/2022	7/12/2022	7/12/2022	7/12/2022	7/12/2022
Benzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	mg/L		< 0.002	0.002	< 0.002	< 0.002	< 0.002
o-Xylene	mg/L		< 0.001	0.002	< 0.001	< 0.001	< 0.001
Toluene	mg/L		0.002	0.002	< 0.001	< 0.001	< 0.001
Xylenes - Total*	mg/L		< 0.003	0.004	< 0.003	< 0.003	< 0.003
Chlorinated Hydrocarbons							
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005				
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005				
1.2.3-Trichlorobenzene	mg/L		< 0.005				
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005				
1.2.4-Trichlorobenzene	mg/L		< 0.005				
1.2-Dichlorobenzene	mg/L		< 0.005				
1.3.5-Trichlorobenzene	mg/L		< 0.005				
1.3-Dichlorobenzene	mg/L		< 0.005				
1.4-Dichlorobenzene	mg/L		< 0.005				
Benzal chloride	mg/L		< 0.0001				
Benzotrichloride	mg/L		< 0.0001				
Benzyl chloride	mg/L		< 0.005				
Hexachlorobenzene	mg/L		< 0.005				
Hexachlorobutadiene	mg/L		< 0.005				
Hexachlorocyclopentadiene	mg/L		< 0.005				
Hexachloroethane	mg/L		< 0.005				
Pentachlorobenzene	mg/L		< 0.005				
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L		31	6	< 1	< 1	< 1
Magnesium	mg/L		4.6	3	1	2	2
Potassium	mg/L		47	94	15	15	15
Sodium	mg/L		180	1700	2500	2600	2600



Lab Retest
False Positive

Project: SJOT6 Yatala Water Treatment Plant			948107	948107	948107	948110 948107	948110 948107
Table: Treated Batch 3 Ampol Washwater		EA0002264	SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003	SJO6_DW003
	Unit	Maximum Limit	7/12/2022	7/12/2022	7/12/2022	7/12/2022	7/12/2022
Heavy Metals							
Arsenic	mg/L		0.007	0.039	0.023	0.023	0.023
Cadmium	mg/L		0.016	0.0052	< 0.0002	< 0.0002	< 0.0002
Chromium	mg/L		0.14	0.11	0.047	0.051	0.051
Copper	mg/L		0.23	0.045	< 0.001	< 0.001	< 0.001
Lead	mg/L		1.5	0.77	0.004	0.004	0.004
Nickel	mg/L		0.16	0.32	0.16	0.16	0.16
Zinc	mg/L		2.8	1.4	0.1	0.11	0.11
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16	mg/L		< 0.05	4	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)	mg/L		< 0.05	3.7	< 0.05	< 0.05	< 0.05
TRH >C10-C40 (total)*	mg/L		< 0.1	7.9	0.1	< 0.1	< 0.1
TRH >C16-C34	mg/L		< 0.1	3.9	0.1	< 0.1	< 0.1
TRH >C34-C40	mg/L		< 0.1	0.3	< 0.1	< 0.1	< 0.1
TRH C6-C10	mg/L		< 0.01	0.37	< 0.01	0.02	0.02
TRH C6-C10 less BTEX (F1)	mg/L		< 0.01	0.36	< 0.01	0.02	0.02
pH							
pH	pH units		12.8				



Retreated and
retested to
achieve
compliance

Treated Water
SJ06_DW004

Project: SJOT6 Yatala Water Treatment Plant			950743	950743	950743	950742	955229	EB2300914	DW/QCT
Table: Treated Batch 4 Southport Light Rail		EA0002264	SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004	SJO6_DW004R	SJO6_QCT004	RPD
	Unit	Maximum Limit	15/12/2022	15/12/2022	15/12/2022	15/12/2022	7/09/8199	11/01/2023	
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.012	0.006	< 0.001	< 0.001	< 0.001	<0.001	0
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	1.5	0.68	< 0.005	< 0.005	< 0.005	<0.001	0
Perfluoroalkyl carboxylic acids (PFCA)									
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.018	0.005	0.013	0.018	< 0.005	<0.002	160
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.015	0.002	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.025	0.005	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.034	0.005	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.017	0.004	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorotridecanoic acid (PFTTrDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluoroalkyl sulfonamido substances									
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.001	0
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.001	0
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.001	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.001	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0005	0
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0005	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0005	0
Perfluoroalkyl sulfonic acids (PFAS)									
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.023	0.01	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.043	0.02	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	<0.0005	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.29	0.14	< 0.001	< 0.001	< 0.001	<0.0003	0
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		0
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		0
PFASs Summations									
Sum (PFHxS + PFOS)*	µg/L		0.333	0.16	< 0.001	< 0.001	< 0.001	<0.0003	0
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.367	0.165	< 0.001	< 0.001	< 0.001		0
Sum of PFASs (n=30)*	µg/L		1.985	0.883	0.013	0.018	< 0.005	<0.0003	0



Retreated and
retested to
achieve
compliance

Treated Water
SJ06_DW004

Project: SJOT6 Yatala Water Treatment Plant			950743	950743	950743	950742	955229	EB2300914	DW/QCT
Table: Treated Batch 4 Southport Light Rail		EA0002264	SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004	SJO6_DW004R	SJO6_QCT004	RPD
	Unit	Maximum Limit	15/12/2022	15/12/2022	15/12/2022	15/12/2022	7/09/8199	11/01/2023	
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.324	0.145	< 0.001	< 0.001	< 0.001		0
Sum of WA DWER PFAS (n=10)*	µg/L		1.977	0.877	0.013	0.018	< 0.005	<0.0003	0
Analytes									
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		1200						
Chemical Oxygen Demand (COD)	mg/L		340						
Chloride	mg/L		2600						
Dissolved Organic Carbon	mg/L		57	340	180	140			
Nitrate & Nitrite (as N)	mg/L		0.13						
Phosphate total (as P)	mg/L		0.69						
Sulphate (as SO4)	mg/L		500	450	410	500			
Total Kjeldahl Nitrogen (as N)	mg/L		2.3						
Total Nitrogen (as N)*	mg/L		2.43						
Total Organic Carbon	mg/L		57	340	190	140			
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		680	120	< 5	20			
Alkalinity (speciated)									
Bicarbonate Alkalinity (as CaCO3)	mg/L		44	< 20	290	280			
Carbonate Alkalinity (as CaCO3)	mg/L		< 10	< 10	< 10	< 10			
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	< 20			
Total Alkalinity (as CaCO3)	mg/L		44	< 20	290	280			
BTEX									
Benzene	mg/L		< 0.001	< 0.01	< 0.001	< 0.001			
Ethylbenzene	mg/L		< 0.001	< 0.01	< 0.001	< 0.001			
m&p-Xylenes	mg/L		0.005	< 0.02	< 0.002	< 0.002			
o-Xylene	mg/L		0.004	< 0.01	< 0.001	< 0.001			
Toluene	mg/L		0.007	< 0.01	< 0.001	< 0.001			
Xylenes - Total*	mg/L		0.009	< 0.03	< 0.003	< 0.003			
Chlorinated Hydrocarbons									
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005						
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005						
1.2.3-Trichlorobenzene	mg/L		< 0.005						
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005						
1.2.4-Trichlorobenzene	mg/L		< 0.005						
1.2-Dichlorobenzene	mg/L		< 0.005						
1.3.5-Trichlorobenzene	mg/L		< 0.005						
1.3-Dichlorobenzene	mg/L		< 0.005						
1.4-Dichlorobenzene	mg/L		< 0.005						
Benzal chloride	mg/L		< 0.0001						
Benzotrachloride	mg/L		< 0.0001						



Retreated and
retested to
achieve
compliance

Treated Water
SJ06_DW004

Project: SJOT6 Yatala Water Treatment Plant			950743	950743	950743	950742	955229	EB2300914	DW/QCT
Table: Treated Batch 4 Southport Light Rail		EA0002264	SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004	SJO6_DW004R	SJO6_QCT004	RPD
	Unit	Maximum Limit	15/12/2022	15/12/2022	15/12/2022	15/12/2022	7/09/8199	11/01/2023	
Benzyl chloride	mg/L		< 0.005						
Hexachlorobenzene	mg/L		< 0.005						
Hexachlorobutadiene	mg/L		< 0.005						
Hexachlorocyclopentadiene	mg/L		< 0.005						
Hexachloroethane	mg/L		< 0.005						
Pentachlorobenzene	mg/L		< 0.005						
Eurofins Suite B11C: Na/K/Ca/Mg									
Calcium	mg/L		160	37	4	3			
Magnesium	mg/L		38	5	2	1			
Potassium	mg/L		56	29	6	5			
Sodium	mg/L		570	240	520	470			
Heavy Metals									
Arsenic	mg/L		0.034	0.021	0.007	0.003			
Cadmium	mg/L		0.0025	0.0041	< 0.0002	< 0.0002			
Chromium	mg/L		0.11	0.036	0.067	0.06			
Copper	mg/L		0.32	0.41	< 0.001	< 0.001			
Lead	mg/L		15	2.2	< 0.001	0.003			
Nickel	mg/L		0.066	0.094	0.61	0.5			
Zinc	mg/L		11	0.71	< 0.005	0.012			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01			
TRH >C10-C16	mg/L		0	6	0	< 0.05			
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.28	5.7	0.06	< 0.05			
TRH >C10-C40 (total)*	mg/L		0.48	14.4	0.36	< 0.1			
TRH >C16-C34	mg/L		0.2	7.2	0.3	< 0.1			
TRH >C34-C40	mg/L		< 0.1	1.5	< 0.1	< 0.1			
TRH C6-C10	mg/L		0.09	0.58	0.05	0.04			
TRH C6-C10 less BTEX (F1)	mg/L		0.07	0.58	0.05	0.04			
pH									
pH	pH units		8.2						



Project: SJOT6 Yatala Water Treatment Plant			961508	961508	961508	961506 961508
Table: Treated Batch 5 Brisbane Airport, Ampol, Enoggera Barracks		EA0002264	SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
	Unit	Maximum Limit	8/02/2023	8/02/2023	8/02/2022	7/02/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.09	0.04	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	1.5	1.3	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCA)						
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	< 0.05	< 0.05	0.015	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.03	0.02	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.13	0.12	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.03	0.02	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	< 0.01	0.03	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	< 0.01	0.02	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			961508	961508	961508	961506 961508
Table: Treated Batch 5 Brisbane Airport, Ampol, Enoggera Barracks		EA0002264	SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
	Unit	Maximum Limit	8/02/2023	8/02/2023	8/02/2022	7/02/2023
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.07	0.04	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.15	0.12	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	1.3	0.44	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	0.16	< 0.01	< 0.001	< 0.001
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L		1.45	0.56	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		1.48	0.58	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		3.46	2.15	0.015	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		1.33	0.46	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		3.23	2.11	0.015	< 0.005
Analytes						
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		140			
Chemical Oxygen Demand (COD)	mg/L		280			
Chloride	mg/L		1200			
Dissolved Organic Carbon	mg/L		160			
Nitrate & Nitrite (as N)	mg/L		< 0.05			
Phosphate total (as P)	mg/L		0.11			
Sulphate (as SO4)	mg/L		410			
Total Kjeldahl Nitrogen (as N)	mg/L		6.1			
Total Nitrogen (as N)*	mg/L		6.1			
Total Organic Carbon	mg/L		170			
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		9.9			
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	mg/L		540			



Project: SJOT6 Yatala Water Treatment Plant			961508	961508	961508	961506 961508
Table: Treated Batch 5 Brisbane Airport, Ampol, Enoggera Barracks		EA0002264	SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
	Unit	Maximum Limit	8/02/2023	8/02/2023	8/02/2022	7/02/2023
Carbonate Alkalinity (as CaCO ₃)	mg/L		< 10			
Hydroxide Alkalinity (as CaCO ₃)	mg/L		< 20			
Total Alkalinity (as CaCO ₃)	mg/L		540			
BTEX						
Benzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/L		0.004	< 0.001	< 0.001	< 0.001
m&p-Xylenes	mg/L		0.014	0.002	< 0.002	< 0.002
o-Xylene	mg/L		0.007	0.001	< 0.001	< 0.001
Toluene	mg/L		0.005	< 0.001	< 0.001	< 0.001
Xylenes - Total*	mg/L		0.02	0.003	< 0.003	< 0.003
Chlorinated Hydrocarbons						
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3-Trichlorobenzene	mg/L		< 0.005			
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.4-Trichlorobenzene	mg/L		< 0.005			
1.2-Dichlorobenzene	mg/L		< 0.005			
1.3.5-Trichlorobenzene	mg/L		< 0.005			
1.3-Dichlorobenzene	mg/L		< 0.005			
1.4-Dichlorobenzene	mg/L		< 0.005			
Benzal chloride	mg/L		< 0.0001			
Benzotrichloride	mg/L		< 0.0001			
Benzyl chloride	mg/L		< 0.005			
Hexachlorobenzene	mg/L		< 0.005			
Hexachlorobutadiene	mg/L		< 0.005			
Hexachlorocyclopentadiene	mg/L		< 0.005			
Hexachloroethane	mg/L		< 0.005			



Project: SJOT6 Yatala Water Treatment Plant			961508	961508	961508	961506 961508
Table: Treated Batch 5 Brisbane Airport, Ampol, Enoggera Barracks		EA0002264	SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
	Unit	Maximum Limit	8/02/2023	8/02/2023	8/02/2022	7/02/2023
Pentachlorobenzene	mg/L		< 0.005			
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	mg/L		17			
Magnesium	mg/L		26			
Potassium	mg/L		54			
Sodium	mg/L		1000			
Heavy Metals						
Arsenic	mg/L		0.038			
Cadmium	mg/L		< 0.0002			
Chromium	mg/L		0.002			
Copper	mg/L		< 0.001			
Lead	mg/L		0.02			
Nickel	mg/L		0.11			
Zinc	mg/L		< 0.005			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16	mg/L		2	1	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)	mg/L		1.7	0.78	< 0.05	< 0.05
TRH >C10-C40 (total)*	mg/L		4.8	1.88	< 0.1	< 0.1
TRH >C16-C34	mg/L		3.1	1.1	< 0.1	< 0.1
TRH >C34-C40	mg/L		< 0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	mg/L		0.18	0.07	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)	mg/L		0.15	0.07	< 0.02	< 0.02
pH						
pH	pH units		7.8			

Project: SJOT6 Yatala Water Treatment Plant			967207	967207	967207	967207	968096
Table: Treated Batch 6R (retreat and retest) Ampol Washwater		EA0002264	SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006	SJO6_DW006R
	Unit	Maximum Limit	27/02/2023	27/02/2023	27/02/2023	27/02/2023	1/03/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.12	0.02	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	0.1	0.08	< 0.005	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	< 0.05	< 0.05	0.02	0.041	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.02	0.02	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.08	0.04	< 0.001	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.05	0.02	< 0.001	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.04	0.02	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.002
Perfluoroalkyl sulfonic acids (PFSA)							
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.06	0.03	< 0.001	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.06	0.03	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.51	0.19	< 0.001	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.67	0.31	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.02	< 0.01	< 0.001	< 0.001	< 0.001

Project: SJOT6 Yatala Water Treatment Plant			967207	967207	967207	967207	968096
Table: Treated Batch 6R (retreat and retest) Ampol Washwater		EA0002264	SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006	SJO6_DW006R
	Unit	Maximum Limit	27/02/2023	27/02/2023	27/02/2023	27/02/2023	1/03/2023
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.01	0.03	0.001	< 0.001	< 0.001
PFASs Summations							
Sum (PFHxS + PFOS)*	µg/L		1.18	0.5	< 0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		1.23	0.52	< 0.001	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		1.73	0.79	0.021	0.041	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.72	0.33	< 0.001	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		1.65	0.73	0.02	0.041	< 0.005
Analytes							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L						
Chemical Oxygen Demand (COD)	mg/L		1700	960	480	530	
Chloride	mg/L						
Dissolved Organic Carbon	mg/L		450	1100	200	220	
Nitrate & Nitrite (as N)	mg/L						
Phosphate total (as P)	mg/L						
Sulphate (as SO ₄)	mg/L		98	270	240	260	
Total Kjeldahl Nitrogen (as N)	mg/L						
Total Nitrogen (as N)*	mg/L						
Total Organic Carbon	mg/L		460	1100	210	220	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		100	370	12	< 5	
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L		< 20	1300	310	230	
Carbonate Alkalinity (as CaCO ₃)	mg/L		4000	< 20	< 20	< 20	
Hydroxide Alkalinity (as CaCO ₃)	mg/L		690	< 20	< 20	< 20	
Total Alkalinity (as CaCO ₃)	mg/L		4700	1300	310	230	
BTEX							
Benzene	mg/L		0.003	< 0.001	< 0.001	< 0.001	
Ethylbenzene	mg/L		0.002	< 0.001	< 0.001	< 0.001	
m&p-Xylenes	mg/L		0.007	< 0.002	< 0.002	< 0.002	
o-Xylene	mg/L		0.005	0.001	< 0.001	< 0.001	
Toluene	mg/L		0.009	0.001	< 0.001	< 0.001	
Xylenes - Total*	mg/L		0.012	< 0.003	< 0.003	< 0.003	
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L		2.6	9	12	6	



Retreated and
retested to achieve
compliance

Project: SJOT6 Yatala Water Treatment Plant			967207	967207	967207	967207	968096
Table: Treated Batch 6R (retreat and retest) Ampol Washwater		EA0002264	SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006	SJO6_DW006R
	Unit	Maximum Limit	27/02/2023	27/02/2023	27/02/2023	27/02/2023	1/03/2023
Magnesium	mg/L		< 1	8	12	6	
Potassium	mg/L		250	97	11	11	
Sodium	mg/L		7100	2600	540	560	
Heavy Metals							
Arsenic	mg/L		0.22	0.073	0.008	0.004	
Cadmium	mg/L		< 0.0002	< 0.0002	< 0.0002	< 0.0002	
Chromium	mg/L		0.006	0.008	0.008	0.014	
Copper	mg/L		0.006	0.005	< 0.001	< 0.001	
Lead	mg/L		0.07	0.025	< 0.001	< 0.001	
Nickel	mg/L		0.55	0.22	0.14	0.18	
Zinc	mg/L		0.051	0.093	< 0.005	0.007	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L		0.08	< 0.01	< 0.01	< 0.01	
TRH >C10-C16	mg/L		24	7	< 0.05	< 0.05	
TRH >C10-C16 less Naphthalene (F2)	mg/L		23.92	6.6	< 0.05	< 0.05	
TRH >C10-C40 (total)*	mg/L		48.3	14.4	< 0.1	< 0.1	
TRH >C16-C34	mg/L		23	7.2	< 0.1	< 0.1	
TRH >C34-C40	mg/L		1.3	0.6	< 0.1	< 0.1	
TRH C6-C10	mg/L		1.3	0.4	< 0.02	< 0.02	
TRH C6-C10 less BTEX (F1)	mg/L		1.3	0.4	< 0.02	< 0.02	
pH		pH units	12.7				

Project: SJOT6 Yatala Water Treatment Plant			971145	971145	971145	970913	971145
Table: Treated Batch 7R (retreat and retest) Ampol Washwater		EA0002264	SJO6_UW007	SJO6_PW007	SJO6_TW007	SJO6_DW007	SJO6_DW007R
	Unit	Maximum Limit	1/03/2023	1/03/2023	1/03/2023	9/03/2023	15/03/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.14	0.09	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	0.17	0.17	< 0.005	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	< 0.05	< 0.05	0.014	0.013	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.08	0.06	< 0.001	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.01	0.01	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.04	0.03	< 0.001	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.002	< 0.005
Perfluoroalkyl sulfonic acids (PFSA)							
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.09	0.04	< 0.001	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.07	0.06	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.67	0.42	< 0.001	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.66	0.38	0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.09	0.02	< 0.001	< 0.001	< 0.001

Project: SJOT6 Yatala Water Treatment Plant			971145	971145	971145	970913	971145
Table: Treated Batch 7R (retreat and retest) Ampol Washwater		EA0002264	SJO6_UW007	SJO6_PW007	SJO6_TW007	SJO6_DW007	SJO6_DW007R
	Unit	Maximum Limit	1/03/2023	1/03/2023	1/03/2023	9/03/2023	15/03/2023
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.01	< 0.01	0.003	< 0.001	< 0.001
PFASs Summations							
Sum (PFHxS + PFOS)*	µg/L		1.33	0.8	0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		1.37	0.83	0.001	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		2.01	1.28	0.018	0.013	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.7	0.41	0.001	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		1.85	1.19	0.015	< 0.005	< 0.005
Analytes							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L						
Chemical Oxygen Demand (COD)	mg/L		1600	1900	1300	1400	
Chloride	mg/L						
Dissolved Organic Carbon	mg/L		2300	2000	2400	3200	
Nitrate & Nitrite (as N)	mg/L						
Phosphate total (as P)	mg/L						
Sulphate (as SO ₄)	mg/L		310	270	180	170	
Total Kjeldahl Nitrogen (as N)	mg/L						
Total Nitrogen (as N)*	mg/L						
Total Organic Carbon	mg/L		2300	2000	2700	3300	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		21	29	21	17	
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L		4900	4800	2100	2000	
Carbonate Alkalinity (as CaCO ₃)	mg/L		< 40	< 40	< 40	< 40	
Hydroxide Alkalinity (as CaCO ₃)	mg/L		< 40	< 40	< 40	< 40	
Total Alkalinity (as CaCO ₃)	mg/L		4900	4800	2100	2000	
BTEX							
Benzene	mg/L		0.001	< 0.001	< 0.001	< 0.001	
Ethylbenzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	
m&p-Xylenes	mg/L		< 0.002	< 0.002	< 0.002	< 0.002	
o-Xylene	mg/L		0.001	< 0.001	< 0.001	< 0.001	
Toluene	mg/L		0.002	< 0.001	< 0.001	< 0.001	
Xylenes - Total*	mg/L		< 0.003	< 0.003	< 0.003	< 0.003	
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L		1.5	< 0.5	11	30	



Retreated and
retested to achieve
compliance

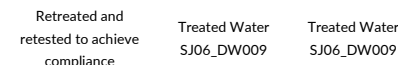
Project: SJOT6 Yatala Water Treatment Plant			971145	971145	971145	970913	971145
Table: Treated Batch 7R (retreat and retest) Ampol Washwater		EA0002264	SJO6_UW007	SJO6_PW007	SJO6_TW007	SJO6_DW007	SJO6_DW007R
	Unit	Maximum Limit	1/03/2023	1/03/2023	1/03/2023	9/03/2023	15/03/2023
Magnesium	mg/L		0.9	< 0.5	9	25	
Potassium	mg/L		240	210	110	120	
Sodium	mg/L		6600	5800	3200	3500	
Heavy Metals							
Arsenic	mg/L		0.18	0.12	0.026	0.009	
Cadmium	mg/L		< 0.0002	< 0.0002	< 0.0002	< 0.0002	
Chromium	mg/L		0.024	0.023	0.043	0.038	
Copper	mg/L		0.04	0.013	0.008	0.006	
Lead	mg/L		0.012	0.004	0.007	0.007	
Nickel	mg/L		0.65	0.57	0.25	0.27	
Zinc	mg/L		0.35	0.3	0.054	0.04	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L		0.01	< 0.01	< 0.01	< 0.01	
TRH >C10-C16	mg/L		18	12	< 0.05	< 0.05	
TRH >C10-C16 less Naphthalene (F2)	mg/L		17.99	12	< 0.05	< 0.05	
TRH >C10-C40 (total)*	mg/L		35.8	20.1	0.5	0.3	
TRH >C16-C34	mg/L		17	7.6	0.3	0.2	
TRH >C34-C40	mg/L		0.8	0.5	0.2	0.1	
TRH C6-C10	mg/L		1.1	0.93	< 0.02	0.03	
TRH C6-C10 less BTEX (F1)	mg/L		1.1	0.93	< 0.02	0.03	
pH							
pH	pH units		12.5				



Project: SJOT6 Yatala Water Treatment Plant			989484	989484	989484	989488
Table: Treated Batch 8 SLR, Bowen Hills, Brisbane Airport, Coomera Connector		EA0002264	SJO6_UW008	SJO6_PW008	SJO6_TW008	SJO6_DW008
	Unit	Maximum Limit	12/05/2023	12/05/2023	12/05/2023	12/05/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.64	0.098	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.012	0.01	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	1.1	0.66	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.057	0.093	0.01	< 0.001
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.004	0.002	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.042	0.053	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.3	0.37	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.021	0.007	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.14	0.12	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.13	0.1	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	0.003	0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	0.007	0.032	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.002	0.11	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	0.003	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	0.007	< 0.002	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.023	0.17	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			989484	989484	989484	989488
Table: Treated Batch 8 SLR, Bowen Hills, Brisbane Airport, Coomera Connector		EA0002264	SJO6_UW008	SJO6_PW008	SJO6_TW008	SJO6_DW008
	Unit	Maximum Limit	12/05/2023	12/05/2023	12/05/2023	12/05/2023
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	0.005	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.048	0.021	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.23	0.44	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001	0.006	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	3.2	0.46	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.02	0.058	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001	0.02	< 0.001	< 0.001
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L		3.43	0.9	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		3.57	1.02	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		5.977	2.848	0.01	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		3.34	0.58	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		5.862	2.564	0.01	< 0.005
pH (in-situ)						
pH	pH units		7.6			



Retreated and retested to achieve compliance	Treated Water SJ06_DW009	Treated Water SJ06_DW009
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Retreated and
retested to achieve
compliance

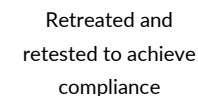
Treated Water
SJ06_DW009

Treated Water
SJ06_DW009

Project: SJOT6 Yatala Water Treatment Plant			1005476	999077 999068	999077 999068	999077	1006678	999077	EB2318315001	DW/QCD	DW/QCT
Table: Treated Batch 9 SLR, Brisbane Airport, Bowen Hills, Amberley RAAF Base		EA0002264	SJO6_UW009	SJO6_PW009	SJO6_TW009	SJO6_DW009	SJO6_DW009R	SJO6_QCD009	SJO6_QCT009	RPD	RPD
	Unit	Maximum Limit	6/07/2023	6/07/2023	6/07/2023	6/07/2023	11/07/2023	6/07/2023	11/01/2023		
Total Nitrogen (as N)*	mg/L										
Total Organic Carbon	mg/L		11	160	74	56					
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		39	76	36	8					
Alkalinity (speciated)											
Bicarbonate Alkalinity (as CaCO3)	mg/L		330	460	600	430					
Carbonate Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	< 20					
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	< 20					
Total Alkalinity (as CaCO3)	mg/L		330	460	600	430					
BTEX											
Benzene	mg/L		< 0.001	< 0.001	< 0.1	< 0.025					
Ethylbenzene	mg/L		< 0.001	< 0.001	< 0.1	< 0.025					
m&p-Xylenes	mg/L		< 0.002	< 0.002	< 0.2	< 0.05					
o-Xylene	mg/L		< 0.001	< 0.001	< 0.1	< 0.025					
Toluene	mg/L		< 0.001	< 0.001	< 0.1	< 0.025					
Xylenes - Total*	mg/L		< 0.003	< 0.003	< 0.3	< 0.075					
Eurofins Suite B11C: Na/K/Ca/Mg											
Calcium	mg/L		110	120	5.2	4					
Magnesium	mg/L		49	51	16	4					
Potassium	mg/L		250	300	54	44					
Sodium	mg/L		610	670	1400	1400					
Heavy Metals											
Arsenic	mg/L		0.027	0.033	0.003	0.005					
Cadmium	mg/L		0.0007	0.0013	< 0.0002	< 0.0002					
Chromium	mg/L		0.008	0.024	0.01	0.012					
Copper	mg/L		0.075	0.21	0.002	0.002					
Lead	mg/L		0.024	0.057	0.002	0.002					
Nickel	mg/L		0.01	0.025	0.25	0.32					
Zinc	mg/L		0.66	1.8	0.021	0.02					
Total Recoverable Hydrocarbons - 2013 NEPM Fractions											
Naphthalene	mg/L		< 0.01	< 0.01	< 0.1	< 0.025					
TRH >C10-C16	mg/L		0	< 0.05	< 0.05	< 0.05					
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.05	< 0.05	< 0.05	< 0.05					
TRH >C10-C40 (total)*	mg/L		0.25	< 0.1	< 0.1	< 0.1					
TRH >C16-C34	mg/L		0.2	< 0.1	< 0.1	< 0.1					
TRH >C34-C40	mg/L		< 0.1	< 0.1	< 0.1	< 0.1					
TRH C6-C10	mg/L		< 0.01	< 0.01	< 2	< 0.5					
TRH C6-C10 less BTEX (F1)	mg/L		< 0.01	< 0.01	< 2	< 0.5					
pH (in-situ)											
pH	pH units		8.1								

Project: SJOT6 Yatala Water Treatment Plant			1010043	1010043	1010043	1010043	1011633
Table: Treated Batch 10 Brisbane Airport Hanger		EA0002264	SJO6_UW010	SJO6_PW010	SJO6_TW010	SJO6_DW010	SJO6_DW010R
	Unit	Maximum Limit	21/07/2023	21/07/2023	21/07/2023	21/07/2023	27/07/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.51	0/01/1900	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.014	0.005	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	2.7	0.16	< 0.005	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.049	0.051	0.055	0.094	< 0.001
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.06	0.012	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.29	0.15	< 0.001	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.008	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.06	0.005	< 0.001	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.14	0.11	0.006	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	0.007	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances							
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.014	0.002	< 0.001	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.008	0.001	< 0.001	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.081	0.002	< 0.001	< 0.001	< 0.001

Project: SJOT6 Yatala Water Treatment Plant			1010043	1010043	1010043	1010043	1011633
Table: Treated Batch 10 Brisbane Airport Hanger		EA0002264	SJO6_UW010	SJO6_PW010	SJO6_TW010	SJO6_DW010	SJO6_DW010R
	Unit	Maximum Limit	21/07/2023	21/07/2023	21/07/2023	21/07/2023	27/07/2023
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	0.014	< 0.001	0.009	< 0.001	< 0.001
PFASs Summations							
Sum (PFHxS + PFOS)*	µg/L		0.089	0.003	< 0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.149	0.008	< 0.001	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		3.971	0.503	0.07	0.094	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.141	0.007	< 0.001	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		3.912	0.498	0.061	0.094	< 0.005
Analytes							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		< 5				
Chemical Oxygen Demand (COD)	mg/L		26				
Chloride	mg/L		190	270	280	270	
Dissolved Organic Carbon	mg/L		13	110	86	19	
Nitrate & Nitrite (as N)	mg/L		2.7				
Phosphate total (as P)	mg/L		0.06				
Sulphate (as SO4)	mg/L		140	140	150	100	
Total Kjeldahl Nitrogen (as N)	mg/L		45				
Total Nitrogen (as N)*	mg/L		47.7				
Total Organic Carbon	mg/L		36	< 5	170	110	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		16	15	< 5	66	
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L		180	75	350	350	
Carbonate Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	< 20	
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20	< 20	< 20	< 20	
Total Alkalinity (as CaCO3)	mg/L		180	75	350	350	
BTEX							
Benzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	
Ethylbenzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	
m&p-Xylenes	mg/L		< 0.002	< 0.002	< 0.002	< 0.002	
o-Xylene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	
Toluene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	
Xylenes - Total*	mg/L		< 0.003	< 0.003	< 0.003	< 0.003	



Project: SJOT6 Yatala Water Treatment Plant			1010043	1010043	1010043	1010043	1011633
Table: Treated Batch 10 Brisbane Airport Hanger		EA0002264	SJO6_UW010	SJ06_PW010	SJ06_TW010	SJ06_DW010	SJO6_DW010R
	Unit	Maximum Limit	21/07/2023	21/07/2023	21/07/2023	21/07/2023	27/07/2023
Chlorinated Hydrocarbons							
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005				
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005				
1.2.3-Trichlorobenzene	mg/L		< 0.005				
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005				
1.2.4-Trichlorobenzene	mg/L		< 0.005				
1.2-Dichlorobenzene	mg/L		< 0.005				
1.3.5-Trichlorobenzene	mg/L		< 0.005				
1.3-Dichlorobenzene	mg/L		< 0.005				
1.4-Dichlorobenzene	mg/L		< 0.005				
Benzal chloride	mg/L		< 0.0001				
Benzotrichloride	mg/L		< 0.0001				
Benzyl chloride	mg/L		< 0.005				
Hexachlorobenzene	mg/L		< 0.005				
Hexachlorobutadiene	mg/L		< 0.005				
Hexachlorocyclopentadiene	mg/L		< 0.005				
Hexachloroethane	mg/L		< 0.005				
Pentachlorobenzene	mg/L		< 0.005				
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L		43	45	2.4	2.2	
Magnesium	mg/L		19	19	5.3	4.2	
Potassium	mg/L		35	39	40	38	
Sodium	mg/L		100	120	360	340	
Heavy Metals							
Arsenic	mg/L		0.005	0.004	0.002	0.005	
Cadmium	mg/L		0.001	0.0005	< 0.0002	< 0.0002	
Chromium	mg/L		0.002	0.003	0.005	0.007	
Copper	mg/L		0.039	0.004	< 0.001	< 0.001	
Lead	mg/L		0.002	0.006	0.001	0.002	
Nickel	mg/L		0.004	0.01	0.29	0.14	
Zinc	mg/L		0.25	0.77	< 0.005	< 0.005	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							



Retreated and
retested to achieve
compliance

Project: SJOT6 Yatala Water Treatment Plant			1010043	1010043	1010043	1010043	1011633
Table: Treated Batch 10 Brisbane Airport Hanger		EA0002264	SJO6_UW010	SJO6_PW010	SJO6_TW010	SJO6_DW010	SJO6_DW010R
	Unit	Maximum Limit	21/07/2023	21/07/2023	21/07/2023	21/07/2023	27/07/2023
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01	
TRH >C10-C16	mg/L		< 0.05	< 0.05	< 0.05	< 0.05	
TRH >C10-C16 less Naphthalene (F2)	mg/L		< 0.05	< 0.05	< 0.05	< 0.05	
TRH >C10-C40 (total)*	mg/L		< 0.1	0.2	< 0.1	< 0.1	
TRH >C16-C34	mg/L		< 0.1	0.2	< 0.1	< 0.1	
TRH >C34-C40	mg/L		< 0.1	< 0.1	< 0.1	< 0.1	
TRH C6-C10	mg/L		0.03	< 0.01	< 0.01	< 0.01	
TRH C6-C10 less BTEX (F1)	mg/L		0.03	< 0.01	< 0.01	< 0.01	
pH (in-situ)							
	pH		7.8				

Project: SJOT6 Yatala Water Treatment Plant		1018947 1018736	1018947 1018736	1018947 1018736	1018947 1018736
Table: Treated Batch 8 Mix Washwater		SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
	Unit	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Adsorbable Organofluorine (AOF)*	mg/L	< 0.05	0.16	0.1	< 0.05
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	µg/L	2.4	0.21	0.16	< 0.05
Perfluorodecanoic acid (PFDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.35	0.05	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)	µg/L	1.2	0.23	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)	µg/L	0.02	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.1	0.02	< 0.01	< 0.01
Perfluoropentanoic acid (PFPeA)	µg/L	4.6	0.38	0.02	< 0.01
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTTrDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroalkyl sulfonamido substances					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 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
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05



Project: SJOT6 Yatala Water Treatment Plant		1018947 1018736	1018947 1018736	1018947 1018736	1018947 1018736
Table: Treated Batch 8 Mix Washwater		SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
	Unit	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoroalkyl sulfonic acids (PFASs)					
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.04	0.02	0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	0.03	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.44	0.08	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)	µg/L	1.1	0.07	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.04	0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.01	0.01	0.01	< 0.01
PFASs Summations					
Sum (PFHxS + PFOS)*	µg/L	1.54	0.15	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	1.64	0.17	< 0.01	< 0.01
Sum of PFASs (n=30)*	µg/L	10.33	1.08	0.2	< 0.1
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	1.2	0.09	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	µg/L	10.23	1.06	0.19	< 0.05



Project: SJOT6 Yatala Water Treatment Plant			1018736	1018739	1018739	1018739
Table: Treated Batch 11 Brisbane Airport Hanger		EA0002264	SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
	Unit	Maximum Limit	17/08/2023	11/08/2023	11/08/2023	11/08/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.15	< 0.01	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	0.66	0.22	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.07	0.07	0.17	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.07	0.01	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.26	0.15	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.02	< 0.01	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.09	0.01	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.09	0.1	0.009	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.03	0.02	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			1018736	1018739	1018739	1018739
Table: Treated Batch 11 Brisbane Airport Hanger		EA0002264	SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
	Unit	Maximum Limit	17/08/2023	11/08/2023	11/08/2023	11/08/2023
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.51	0.09	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	1.1	0.06	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.02	< 0.01	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	0.01	0.01	0.021	< 0.001
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L		1.61	0.15	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		1.7	0.16	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		3.08	0.74	0.2	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		1.19	0.07	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		3.03	0.73	0.179	< 0.005
Analytes						
Biochemical Oxygen Demand (BOD-5 Day)	mg/L					
Chemical Oxygen Demand (COD)	mg/L					
Chloride	mg/L					
Dissolved Organic Carbon	mg/L					
Nitrate & Nitrite (as N)	mg/L					
Phosphate total (as P)	mg/L					
Sulphate (as SO4)	mg/L					
Total Kjeldahl Nitrogen (as N)	mg/L					
Total Nitrogen (as N)*	mg/L					
Total Organic Carbon	mg/L					
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		87	21	< 5	5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	mg/L					
Carbonate Alkalinity (as CaCO3)	mg/L					
Hydroxide Alkalinity (as CaCO3)	mg/L					
Total Alkalinity (as CaCO3)	mg/L					
BTEX						



Project: SJOT6 Yatala Water Treatment Plant			1018736	1018739	1018739	1018739
Table: Treated Batch 11 Brisbane Airport Hanger		EA0002264	SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
	Unit	Maximum Limit	17/08/2023	11/08/2023	11/08/2023	11/08/2023
Benzene	mg/L					
Ethylbenzene	mg/L					
m&p-Xylenes	mg/L					
o-Xylene	mg/L					
Toluene	mg/L					
Xylenes - Total*	mg/L					
Chlorinated Hydrocarbons						
1.2.3.4-Tetrachlorobenzene	mg/L					
1.2.3.5-Tetrachlorobenzene	mg/L					
1.2.3-Trichlorobenzene	mg/L					
1.2.4.5-Tetrachlorobenzene	mg/L					
1.2.4-Trichlorobenzene	mg/L					
1.2-Dichlorobenzene	mg/L					
1.3.5-Trichlorobenzene	mg/L					
1.3-Dichlorobenzene	mg/L					
1.4-Dichlorobenzene	mg/L					
Benzal chloride	mg/L					
Benzotrichloride	mg/L					
Benzyl chloride	mg/L					
Hexachlorobenzene	mg/L					
Hexachlorobutadiene	mg/L					
Hexachlorocyclopentadiene	mg/L					
Hexachloroethane	mg/L					
Pentachlorobenzene	mg/L					
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	mg/L					
Magnesium	mg/L					
Potassium	mg/L					



Project: SJOT6 Yatala Water Treatment Plant			1018736	1018739	1018739	1018739
Table: Treated Batch 11 Brisbane Airport Hanger		EA0002264	SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
	Unit	Maximum Limit	17/08/2023	11/08/2023	11/08/2023	11/08/2023
Sodium	mg/L					
Heavy Metals						
Arsenic	mg/L		0.007	0.004	< 0.001	< 0.001
Cadmium	mg/L		< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	mg/L		0.006	0.002	0.007	0.009
Copper	mg/L		0.005	< 0.001	< 0.001	< 0.001
Lead	mg/L		0.007	0.004	< 0.001	< 0.001
Nickel	mg/L		0.011	0.005	0.27	0.22
Zinc	mg/L		0.028	0.034	0.023	< 0.005
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	mg/L					
TRH >C10-C16	mg/L					
TRH >C10-C16 less Naphthalene (F2)	mg/L					
TRH >C10-C40 (total)*	mg/L					
TRH >C16-C34	mg/L					
TRH >C34-C40	mg/L					
TRH C6-C10	mg/L					
TRH C6-C10 less BTEX (F1)	mg/L					
pH (in-situ)						
	pH		7.8			



Project: SJOT6 Yatala Water Treatment Plant		1026983	1026983	1026983	1026983
Table: Treated Batch 8 Mix Washwater		SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
	Unit	5/09/2023	5/09/2023	5/09/2023	5/09/2023
Total Organofluorine (TOF)*	mg/L	< 5	< 5	< 5	< 5
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	µg/L	18	0.54	0.15	< 0.05
Perfluorodecanoic acid (PFDA)	µg/L	0.09	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	5	0.08	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)	µg/L	9.4	0.69	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)	µg/L	0.52	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.65	0.02	< 0.01	< 0.01
Perfluoropentanoic acid (PFPeA)	µg/L	39	1.5	0.02	0.01
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.04	< 0.01	< 0.01	< 0.01
Perfluoroalkyl sulfonamido substances					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 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
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05



Project: SJOT6 Yatala Water Treatment Plant		1026983	1026983	1026983	1026983
Table: Treated Batch 8 Mix Washwater		SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
	Unit	5/09/2023	5/09/2023	5/09/2023	5/09/2023
Perfluoroalkyl sulfonic acids (PFSA's)					
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.07	0.02	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.22	0.03	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
PFASs Summations					
Sum (PFHxS + PFOS)*	µg/L	0.29	0.05	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.94	0.07	< 0.01	< 0.01
Sum of PFASs (n=30)*	µg/L	73.01	2.88	0.17	< 0.1
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.87	0.05	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	µg/L	72.35	2.88	0.17	< 0.05



Project: SJOT6 Yatala Water Treatment Plant			1023058	1023058	1023058	1023049
Table: Treated Batch 12 Brisbane Airport Hanger		EA0002264	SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
	Unit	Maximum Limit	5/09/2023	5/09/2023	6/09/2023	5/09/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.45	0.004	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	0.043	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.002	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	< 0.005	0.35	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.27	0.26	0.14	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.019	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	0.002	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.13	0.042	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.77	0.53	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.035	0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.095	0.01	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.78	0.8	0.013	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	0.006	< 0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.004	0.004	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			1023058	1023058	1023058	1023049
Table: Treated Batch 12 Brisbane Airport Hanger		EA0002264	SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
	Unit	Maximum Limit	5/09/2023	5/09/2023	6/09/2023	5/09/2023
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.004	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.049	0.009	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	0.003	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.14	0.006	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.004	0.002	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001	0.002	0.006	< 0.001
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L		0.189	0.015	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.284	0.025	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		2.806	2.02	0.159	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.235	0.016	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		2.688	2.015	0.153	< 0.005
Analytes						
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		< 5			
Chemical Oxygen Demand (COD)	mg/L		89			
Chloride	mg/L		190			
Dissolved Organic Carbon	mg/L		23			
Nitrate & Nitrite (as N)	mg/L		< 0.05			
Phosphate total (as P)	mg/L		0.75			
Sulphate (as SO4)	mg/L		51			
Total Kjeldahl Nitrogen (as N)	mg/L		3.1			
Total Nitrogen (as N)*	mg/L		3.1			
Total Organic Carbon	mg/L		24			
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		58	26	45	26
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	mg/L		150			
Carbonate Alkalinity (as CaCO3)	mg/L		< 20			
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20			



Project: SJOT6 Yatala Water Treatment Plant			1023058	1023058	1023058	1023049
Table: Treated Batch 12 Brisbane Airport Hanger		EA0002264	SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
	Unit	Maximum Limit	5/09/2023	5/09/2023	6/09/2023	5/09/2023
Total Alkalinity (as CaCO3)	mg/L		150			
BTEX						
Benzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	mg/L		< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001
Toluene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	mg/L		< 0.003	< 0.003	< 0.003	< 0.003
Chlorinated Hydrocarbons						
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3-Trichlorobenzene	mg/L		< 0.005			
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.4-Trichlorobenzene	mg/L		< 0.005			
1.2-Dichlorobenzene	mg/L		< 0.005			
1.3.5-Trichlorobenzene	mg/L		< 0.005			
1.3-Dichlorobenzene	mg/L		< 0.005			
1.4-Dichlorobenzene	mg/L		< 0.005			
Benzal chloride	mg/L		< 0.0001			
Benzotrichloride	mg/L		< 0.0001			
Benzyl chloride	mg/L		< 0.005			
Hexachlorobenzene	mg/L		< 0.005			
Hexachlorobutadiene	mg/L		< 0.005			
Hexachlorocyclopentadiene	mg/L		< 0.005			
Hexachloroethane	mg/L		< 0.005			
Pentachlorobenzene	mg/L		< 0.005			
Eurofins Suite B11C: Na/K/Ca/Mg						



Project: SJOT6 Yatala Water Treatment Plant			1023058	1023058	1023058	1023049
Table: Treated Batch 12 Brisbane Airport Hanger		EA0002264	SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
	Unit	Maximum Limit	5/09/2023	5/09/2023	6/09/2023	5/09/2023
Calcium	mg/L		47			
Magnesium	mg/L		22			
Potassium	mg/L		10			
Sodium	mg/L		130			
Heavy Metals						
Arsenic	mg/L		0.002	0.003	< 0.001	0.001
Cadmium	mg/L		0.0003	< 0.0002	< 0.0002	< 0.0002
Chromium	mg/L		0.002	0.001	0.003	0.006
Copper	mg/L		0.006	< 0.001	< 0.001	< 0.001
Lead	mg/L		0.009	0.002	< 0.001	< 0.001
Nickel	mg/L		0.002	0.006	0.15	0.31
Zinc	mg/L		0.1	0.066	< 0.005	0.008
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16	mg/L		0	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.11	< 0.05	< 0.05	< 0.05
TRH >C10-C40 (total)*	mg/L		6.41	0.2	0.1	< 0.1
TRH >C16-C34	mg/L		6.1	0.2	0.1	< 0.1
TRH >C34-C40	mg/L		0.2	< 0.1	< 0.1	< 0.1
TRH C6-C10	mg/L		0.01	< 0.01	< 0.01	0.01
TRH C6-C10 less BTEX (F1)	mg/L		0.01	< 0.01	< 0.01	0.01
pH (in-situ)						
	pH		7.9			



Project: SJOT6 Yatala Water Treatment Plant		1026983	1026983	1026983	1026983
Table: Treated Batch 8 Mix Washwater		SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013
	Unit	13/09/2023	13/09/2023	13/09/2023	13/09/2023
Adsorbable Organofluorine (AOF)*	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	µg/L	1.6	0.09	0.1	< 0.05
Perfluorodecanoic acid (PFDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.3	0.03	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)	µg/L	1.1	0.13	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)	µg/L	0.03	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.13	0.01	< 0.01	< 0.01
Perfluoropentanoic acid (PFPeA)	µg/L	3.7	0.16	0.03	< 0.01
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroalkyl sulfonamido substances					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 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
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05



Project: SJOT6 Yatala Water Treatment Plant		1026983	1026983	1026983	1026983
Table: Treated Batch 8 Mix Washwater		SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013
	Unit	13/09/2023	13/09/2023	13/09/2023	13/09/2023
Perfluoroalkyl sulfonic acids (PFSA)					
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.07	0.03	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	0.05	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.68	0.07	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)	µg/L	1.5	0.04	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.05	0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
PFASs Summations					
Sum (PFHxS + PFOS)*	µg/L	2.18	0.11	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	2.31	0.12	< 0.01	< 0.01
Sum of PFASs (n=30)*	µg/L	9.21	0.57	0.13	< 0.1
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	1.63	0.05	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	µg/L	9.08	0.56	0.13	< 0.05

Project: SJOT6 Yatala Water Treatment Plant			1025975	1025975	1025975	1025977	1025975	
Table: Treated Batch 13 Brisbane Airport Hanger		EA0002264	SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013	SJ06_QC013	RPD
	Unit	Maximum Limit	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)								
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.05	0.00	< 0.001	< 0.001	0.001	67
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	0
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	0.76	0.045	< 0.005	< 0.005	0.057	24
Perfluoroalkyl carboxylic acids (PFCA)								
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.023	0.045	0.1	< 0.005	0.045	0
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.11	0.017	< 0.001	< 0.001	0.019	11
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.35	0.12	< 0.001	< 0.001	0.14	15
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.023	< 0.001	< 0.001	< 0.001	0.001	0
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.19	0.014	< 0.001	< 0.001	0.014	0
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.093	0.086	0.026	< 0.001	0.091	6
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0
Perfluorotridecanoic acid (PFTTrDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0
Perfluoroalkyl sulfonamido substances								
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	0.006	0.005	< 0.002	< 0.005	0.004	22
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.002	0.008	< 0.002	< 0.005	0.007	13
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.005	< 0.002	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.005	< 0.002	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	0.005	< 0.002	< 0.005	0.004	22
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.005	< 0.002	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.005	< 0.002	0
Perfluoroalkyl sulfonic acids (PFSA)								
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.077	0.032	< 0.001	< 0.001	0.033	3
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.027	0.001	< 0.001	< 0.001	< 0.001	0
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.61	0.093	< 0.001	< 0.001	0.086	8
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	0.005	0.006	< 0.001	< 0.001	< 0.001	143
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	1.3	0.034	< 0.001	< 0.001	0.039	14
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.034	0.01	< 0.001	< 0.001	0.01	0
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	0.012	0.016	0.003	< 0.001	0.017	6
PFASs Summations								
Sum (PFHxS + PFOS)*	µg/L		1.91	0.127	< 0.001	< 0.001	0.125	2
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		2.1	0.141	< 0.001	< 0.001	0.139	1
Sum of PFASs (n=30)*	µg/L		3.669	0.539	0.129	< 0.005	0.57	6



Treated Water
SJ06_DW013

Project: SJOT6 Yatala Water Treatment Plant			1025975	1025975	1025975	1025977	1025975	
Table: Treated Batch 13 Brisbane Airport Hanger		EA0002264	SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013	SJ06_QC013	RPD
	Unit	Maximum Limit	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		1.49	0.048	< 0.001	< 0.001	0.053	10
Sum of WA DWER PFAS (n=10)*	µg/L		3.559	0.488	0.126	< 0.005	0.525	7
Analytes								
Biochemical Oxygen Demand (BOD-5 Day)	mg/L							
Chemical Oxygen Demand (COD)	mg/L							
Chloride	mg/L							
Dissolved Organic Carbon	mg/L							
Nitrate & Nitrite (as N)	mg/L							
Phosphate total (as P)	mg/L							
Sulphate (as SO4)	mg/L							
Total Kjeldahl Nitrogen (as N)	mg/L							
Total Nitrogen (as N)*	mg/L							
Total Organic Carbon	mg/L							
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		90	95	22	20		
Alkalinity (speciated)								
Bicarbonate Alkalinity (as CaCO3)	mg/L							
Carbonate Alkalinity (as CaCO3)	mg/L							
Hydroxide Alkalinity (as CaCO3)	mg/L							
Total Alkalinity (as CaCO3)	mg/L							
BTEX								
Benzene	mg/L		< 0.001	< 0.001	< 0.001	< 0.001		
Ethylbenzene	mg/L		0.001	< 0.001	< 0.001	< 0.001		
m&p-Xylenes	mg/L		0.006	< 0.002	< 0.002	< 0.002		
o-Xylene	mg/L		0.004	< 0.001	< 0.001	< 0.001		
Toluene	mg/L		0.005	< 0.001	< 0.001	< 0.001		
Xylenes - Total*	mg/L		0.01	< 0.003	< 0.003	< 0.003		
Chlorinated Hydrocarbons								
1.2.3.4-Tetrachlorobenzene	mg/L							
1.2.3.5-Tetrachlorobenzene	mg/L							
1.2.3-Trichlorobenzene	mg/L							
1.2.4.5-Tetrachlorobenzene	mg/L							
1.2.4-Trichlorobenzene	mg/L							
1.2-Dichlorobenzene	mg/L							
1.3.5-Trichlorobenzene	mg/L							
1.3-Dichlorobenzene	mg/L							
1.4-Dichlorobenzene	mg/L							
Benzal chloride	mg/L							
Benzotrichloride	mg/L							



Treated Water
SJ06_DW013

Project: SJOT6 Yatala Water Treatment Plant			1025975	1025975	1025975	1025977	1025975	
Table: Treated Batch 13 Brisbane Airport Hanger		EA0002264	SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013	SJ06_QC013	RPD
	Unit	Maximum Limit	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	
Benzyl chloride	mg/L							
Hexachlorobenzene	mg/L							
Hexachlorobutadiene	mg/L							
Hexachlorocyclopentadiene	mg/L							
Hexachloroethane	mg/L							
Pentachlorobenzene	mg/L							
Eurofins Suite B11C: Na/K/Ca/Mg								
Calcium	mg/L							
Magnesium	mg/L							
Potassium	mg/L							
Sodium	mg/L							
Heavy Metals								
Arsenic	mg/L		0.01	0.004	< 0.001	< 0.001		
Cadmium	mg/L		0.0006	< 0.0002	< 0.0002	< 0.0002		
Chromium	mg/L		0.008	< 0.001	0.003	0.003		
Copper	mg/L		0.024	0.001	< 0.001	0.001		
Lead	mg/L		0.053	0.002	< 0.001	< 0.001		
Nickel	mg/L		0.018	0.011	0.092	0.25		
Zinc	mg/L		0.25	0.024	< 0.005	< 0.005		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions								
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01		
TRH >C10-C16	mg/L		1	0	0	< 0.05		
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.56	0.11	0.05	< 0.05		
TRH >C10-C40 (total)*	mg/L		2.26	0.71	0.55	< 0.1		
TRH >C16-C34	mg/L		1.4	0.4	0.2	< 0.1		
TRH >C34-C40	mg/L		0.3	0.2	0.3	< 0.1		
TRH C6-C10	mg/L		0.06	0.02	< 0.01	< 0.01		
TRH C6-C10 less BTEX (F1)	mg/L		0.04	0.02	< 0.01	< 0.01		
pH (in-situ)								
	pH		7.7					

Project: SJOT6 Yatala Water Treatment Plant		1030186	1030186	1044034	1044034
Table: Treated Batch 14 Brisbane Airport Hanger		SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
	Unit	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Total Organofluorine (TOF)*	mg/L	< 5	< 5	< 0.05	< 0.05
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	µg/L	< 0.5	< 0.5	0.28	< 0.05
Perfluorodecanoic acid (PFDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.66	0.02	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)	µg/L	3.4	0.77	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)	µg/L	0.03	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.09	< 0.01	< 0.01	< 0.01
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.5	0.54	0.04	< 0.01
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroalkyl sulfonamido substances					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 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
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoroalkyl sulfonic acids (PFSA)					
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.02	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.1	< 0.01	< 0.01	< 0.01

Project: SJOT6 Yatala Water Treatment Plant		1030186	1030186	1044034	1044034
Table: Treated Batch 14 Brisbane Airport Hanger		SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
	Unit	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.26	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.02	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01
PFASs Summations					
Sum (PFHxS + PFOS)*	µg/L	0.36	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.45	< 0.01	< 0.01	< 0.01
Sum of PFASs (n=30)*	µg/L	4.58	1.33	0.32	< 0.1
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.35	< 0.01	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	µg/L	4.53	1.33	0.32	< 0.05



Project: SJOT6 Yatala Water Treatment Plant			1029894	1029894	1029894	1029894
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
	Unit	Maximum Limit	27/09/2023	27/09/2023	27/09/2023	27/09/2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.12	0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	0.01	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.001	0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	1.4	0.24	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.048	0.28	0.096	< 0.005
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	0.002	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.04	0.012	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	0.17	0.64	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	0.008	0.006	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.031	0.01	< 0.001	< 0.001
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.14	0.3	0.012	< 0.001
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	0.013	0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	0.004	< 0.002	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.002	< 0.002	< 0.002	< 0.002
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.015	0.009	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001



Project: SJOT6 Yatala Water Treatment Plant			1029894	1029894	1029894	1029894
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
	Unit	Maximum Limit	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	0.009	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.1	0.008	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.27	0.008	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	0.008	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.001	0.002	0.002	< 0.001
PFASs Summations						
Sum (PFHxS + PFOS)*	µg/L		0.37	0.016	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.401	0.026	< 0.001	< 0.001
Sum of PFASs (n=30)*	µg/L		2.388	1.519	0.11	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.301	0.018	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	µg/L		2.334	1.508	0.108	< 0.005
Analytes						
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		48			
Chemical Oxygen Demand (COD)	mg/L		30			
Chloride	mg/L		270			
Dissolved Organic Carbon	mg/L		12			
Nitrate & Nitrite (as N)	mg/L		0.17			
Phosphate total (as P)	mg/L		0.1			
Sulphate (as SO4)	mg/L		140			
Total Kjeldahl Nitrogen (as N)	mg/L		4.1			
Total Nitrogen (as N)*	mg/L		4.3			
Total Organic Carbon	mg/L		14			
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		610			
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	mg/L		180			
Carbonate Alkalinity (as CaCO3)	mg/L		< 20			
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20			



Project: SJOT6 Yatala Water Treatment Plant			1029894	1029894	1029894	1029894
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
	Unit	Maximum Limit	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Total Alkalinity (as CaCO3)	mg/L		180			
BTEX						
Benzene	mg/L		< 0.001			
Ethylbenzene	mg/L		< 0.001			
m&p-Xylenes	mg/L		< 0.002			
o-Xylene	mg/L		< 0.001			
Toluene	mg/L		< 0.001			
Xylenes - Total*	mg/L		< 0.003			
Chlorinated Hydrocarbons						
1.2.3.4-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.3-Trichlorobenzene	mg/L		< 0.005			
1.2.4.5-Tetrachlorobenzene	mg/L		< 0.005			
1.2.4-Trichlorobenzene	mg/L		< 0.005			
1.2-Dichlorobenzene	mg/L		< 0.005			
1.3.5-Trichlorobenzene	mg/L		< 0.005			
1.3-Dichlorobenzene	mg/L		< 0.005			
1.4-Dichlorobenzene	mg/L		< 0.005			
Benzal chloride	mg/L		< 0.0001			
Benzotrichloride	mg/L		< 0.0001			
Benzyl chloride	mg/L		< 0.005			
Hexachlorobenzene	mg/L		< 0.005			
Hexachlorobutadiene	mg/L		< 0.005			
Hexachlorocyclopentadiene	mg/L		< 0.005			
Hexachloroethane	mg/L		< 0.005			
Pentachlorobenzene	mg/L		< 0.005			
Eurofins Suite B11C: Na/K/Ca/Mg						



Project: SJOT6 Yatala Water Treatment Plant			1029894	1029894	1029894	1029894
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
	Unit	Maximum Limit	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Calcium	mg/L		71			
Magnesium	mg/L		35			
Potassium	mg/L		12			
Sodium	mg/L		190			
Heavy Metals						
Arsenic	mg/L		0.019			
Cadmium	mg/L		0.0003			
Chromium	mg/L		0.017			
Copper	mg/L		0.025			
Lead	mg/L		0.026			
Nickel	mg/L		0.018			
Zinc	mg/L		0.32			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	mg/L		< 0.01			
TRH >C10-C16	mg/L		0.09			
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.09			
TRH >C10-C40 (total)*	mg/L		< 0.1			
TRH >C16-C34	mg/L		< 0.1			
TRH >C34-C40	mg/L		< 0.1			
TRH C6-C10	mg/L		< 0.01			
TRH C6-C10 less BTEX (F1)	mg/L		< 0.01			
pH (in-situ)						
	pH		7.8			

Project: SJOT6 Yatala Water Treatment Plant		1044040	1044040	1044040	1044040	1044040		EB2335828	
Table: Treated Batch 14 Brisbane Airport Hanger		SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015	SJO6_QCD015	QCD RPD	SJO6_QCT015	QCT RPD
	Unit	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023
Total Organofluorine (TOF)*	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	< 20	0
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.05	0
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.05	0
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.05	0
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.05	0
Perfluoroalkyl carboxylic acids (PFCAs)									
Perfluorobutanoic acid (PFBA)	µg/L	0.22	< 0.05	0.21	< 0.05	< 0.05	0	<0.1	0
Perfluorodecanoic acid (PFDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluorododecanoic acid (PFDODA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	1.8	0.11	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluorohexanoic acid (PFHxA)	µg/L	6.1	0.71	< 0.01	< 0.01	< 0.01	0	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.04	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluorooctanoic acid (PFOA)	µg/L	0.11	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluoropentanoic acid (PFPeA)	µg/L	2.3	0.06	0.04	< 0.01	< 0.01	0	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.05	0
Perfluoroalkyl sulfonamido substances									
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.05	0
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.05	0
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.05	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.02	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.05	0
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.02	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0	<0.02	0
Perfluoroalkyl sulfonic acids (PFSA)									
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.03	0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.19	0.02	< 0.01	< 0.01	< 0.01	0	<0.01	0
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	-	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.49	0.02	< 0.01	< 0.01	< 0.01	0	<0.01	0
Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.04	< 0.01	< 0.01	< 0.01	< 0.01	0	<0.02	0
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	-	0
PFASs Summations									
Sum (PFHxS + PFOS)*	µg/L	0.68	0.04	< 0.01	< 0.01	< 0.01	0	<0.01	0
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.79	0.04	< 0.01	< 0.01	< 0.01	0	-	-
Sum of PFASs (n=30)*	µg/L	11.34	0.93	0.25	< 0.1	< 0.1	0	<0.01	0
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.6	0.02	< 0.01	< 0.01	< 0.01	0	-	-
Sum of WA DWER PFAS (n=10)*	µg/L	11.24	0.93	0.25	< 0.05	< 0.05	0	-	-

Untreated Water
SJO6_UW015

Discharge Water
SJO6_DW015

Project: SJO6 Yatala Water Treatment Plant			1044045	1044045	1044045	1044045	1044045	1044045	EB2335828	
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015	SJO6_QCD015	RPD	SJO6_QCT015	RPD
	Unit	Maximum Limit	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023		14/11/2023	
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)										
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	< 0.001	0.11	< 0.01	< 0.001	< 0.001	0.11	0	<0.001	0
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.003	0	<0.001	0
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.003	0	<0.001	0
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA)	µg/L	< 0.005	4.4	0.2	< 0.005	< 0.005	0.44	164	<0.001	0
Perfluoroalkyl carboxylic acids (PFCA)										
Perfluorobutanoic acid (PFBA)	µg/L	< 0.005	0.15	0.11	0.23	< 0.005	0.14	7	<0.002	0
Perfluorodecanoic acid (PFDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001	0	<0.0005	0
Perfluorododecanoic acid (PFDoDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001	0	<0.0005	0
Perfluoroheptanoic acid (PFHpA)	µg/L	< 0.001	0.04	< 0.01	< 0.001	< 0.001	0.064	46	<0.0005	0
Perfluorohexanoic acid (PFHxA)	µg/L	< 0.001	1.1	0.29	< 0.001	< 0.001	0.47	80	<0.0005	0
Perfluorononanoic acid (PFNA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.014	0	<0.0005	0
Perfluorooctanoic acid (PFOA)	µg/L	< 0.001	0.04	< 0.01	< 0.001	< 0.001	0.051	24	<0.0005	0
Perfluoropentanoic acid (PFPeA)	µg/L	< 0.001	0.3	0.13	0.031	< 0.001	0.23	26	<0.0005	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001	0	<0.0005	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001	0	<0.0005	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001	0	<0.0005	0
Perfluoroalkyl sulfonamido substances										
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.001	0
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.001	0
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.001	0
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.0005	0
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.001	0
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.0005	0
Perfluorooctane sulfonamide (FOSA)	µg/L	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	0	<0.0005	0
Perfluoroalkyl sulfonic acids (PFSA)										
Perfluorobutanesulfonic acid (PFBS)	µg/L	< 0.001	0.03	< 0.01	< 0.001	< 0.001	0.031	3	<0.0005	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.001	0	<0.0005	0
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.007	0	<0.0005	0
Perfluorohexanesulfonic acid (PFHxS)	µg/L	< 0.001	0.15	0.01	< 0.001	< 0.001	0.11	31	<0.0005	0
Perfluorononanesulfonic acid (PFNS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.004	0	-	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	< 0.001	0.39	0.02	< 0.001	< 0.001	0.47	19	<0.0003	0
Perfluoropentanesulfonic acid (PFPeS)	µg/L	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	0.011	0	<0.0005	0
Perfluoropropanesulfonic acid (PFPrS)	µg/L	< 0.001	< 0.01	< 0.01	0.005	< 0.001	0.002	0	-	0
PFASs Summations										
Sum (PFHxS + PFOS)*	µg/L		0.54	0.03	< 0.001	< 0.001	0.58	7	<0.0003	0
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L		0.58	0.03	< 0.001	< 0.001	0.631	8	-	-
Sum of PFASs (n=30)*	µg/L		6.71	0.76	0.266	< 0.005	2.161	103	<0.0003	0
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L		0.43	0.02	< 0.001	< 0.001	0.521	19	-	-
Sum of WA DWER PFAS (n=10)*	µg/L		6.71	0.76	0.261	< 0.005	2.116	104	-	-
Analytes										
Biochemical Oxygen Demand (BOD-5 Day)	mg/L		6.9				7.1	3	14	68
Chemical Oxygen Demand (COD)	mg/L		52				49	6	61	16
Chloride	mg/L		730				25	187	828	13
Dissolved Organic Carbon	mg/L		12				13	8	-	-
Nitrate & Nitrite (as N)	mg/L		< 0.01				< 0.01	0	<0.01	0
Phosphate total (as P)	mg/L		180				5.1	189	0.08	200
Sulphate (as SO4)	mg/L		15				14	7	184	170



Untreated Water
SJO6_UW015

Discharge Water
SJO6_DW015

Project: SJO6 Yatala Water Treatment Plant			1044045	1044045	1044045	1044045	1044045		EB2335828	
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015	SJO6_QCD015	RPD	SJO6_QCT015	RPD
	Unit	Maximum Limit	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023		14/11/2023	
Total Kjeldahl Nitrogen (as N)	mg/L		15				14	7	14.5	3
Total Nitrogen (as N)*	mg/L		12				18	40	14.5	19
Total Organic Carbon	mg/L		0.09				0.14	43	21	198
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L		9	19	10	12	< 5	0	1830	198
Alkalinity (speciated)										
Bicarbonate Alkalinity (as CaCO3)	mg/L		300				110	93	250	18
Carbonate Alkalinity (as CaCO3)	mg/L		< 20				< 20	0	<1	0
Hydroxide Alkalinity (as CaCO3)	mg/L		< 20				< 20	0	<1	0
Total Alkalinity (as CaCO3)	mg/L		300				110	93	250	18
BTEX										
Benzene	mg/L		0.004	< 0.001	< 0.001	< 0.001	0.003	29	0.004	0
Ethylbenzene	mg/L		0.015	< 0.001	< 0.001	< 0.001	0.015	0	0.014	7
m&p-Xylenes	mg/L		0.045	< 0.002	< 0.002	< 0.002	0.05	11	0.051	13
o-Xylene	mg/L		0.021	< 0.001	< 0.001	< 0.001	0.023	9	0.023	9
Toluene	mg/L		0.036	0.001	< 0.001	< 0.001	0.036	0	0.036	0
Xylenes - Total*	mg/L		0.066	< 0.003	< 0.003	< 0.003	0.073	10	0.074	11
Chlorinated Hydrocarbons										
1,2,3,4-Tetrachlorobenzene	mg/L		< 0.005				< 0.005	0	-	
1,2,3,5-Tetrachlorobenzene	mg/L		< 0.005				< 0.005	0	-	
1,2,3-Trichlorobenzene	mg/L		< 0.005				< 0.005	0	-	
1,2,4,5-Tetrachlorobenzene	mg/L		< 0.005				< 0.005	0	-	
1,2,4-Trichlorobenzene	mg/L		< 0.005				< 0.005	0	<2	0
1,2-Dichlorobenzene	mg/L		< 0.005				< 0.005	0	<2	0
1,3,5-Trichlorobenzene	mg/L		< 0.005				< 0.005	0	-	
1,3-Dichlorobenzene	mg/L		< 0.005				< 0.005	0	<2	0
1,4-Dichlorobenzene	mg/L		< 0.005				< 0.005	0	<2	0
Benzal chloride	mg/L		< 0.0001				< 0.0001	0	-	
Benzotrichloride	mg/L		< 0.0001				< 0.0001	0	-	
Benzyl chloride	mg/L		< 0.005				< 0.005	0	-	
Hexachlorobenzene	mg/L		< 0.005				< 0.005	0	<4	0
Hexachlorobutadiene	mg/L		< 0.005				< 0.005	0	<2	0
Hexachlorocyclopentadiene	mg/L		< 0.005				< 0.005	0	<10	0
Hexachloroethane	mg/L		< 0.005				< 0.005	0	<2	0
Pentachlorobenzene	mg/L		< 0.005				< 0.005	0	<2	0
Eurofins Suite B11C: Na/K/Ca/Mg										
Calcium	mg/L		170				160	6	131	26
Magnesium	mg/L		50				45	11	39	25
Potassium	mg/L		27				24	12	21	25
Sodium	mg/L		520				470	10	421	21
Heavy Metals										
Arsenic	mg/L		0.011	0.005	0.001	< 0.001	0.01	10	0.009	20
Cadmium	mg/L		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0	<0.0001	0
Chromium	mg/L		0.002	0.002	0.004	0.006	0.001	67	0.001	67
Copper	mg/L		< 0.001	0.008	< 0.001	< 0.001	< 0.001	0	<0.001	0
Lead	mg/L		0.001	0.004	< 0.001	< 0.001	0.001	0	0.001	0



			Untreated Water SJO6_UW015					Discharge Water SJO6_DW015		
Project: SJOT6 Yatala Water Treatment Plant			1044045	1044045	1044045	1044045	1044045	EB2335828		
Table: Treated Batch 14 Brisbane Airport Hanger		EA0002264	SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015	SJO6_QCD015	RPD	SJO6_QCT015	RPD
	Unit	Maximum Limit	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023		14/11/2023	
Nickel	mg/L		0.002	0.003	0.067	0.064	0.002	0	0.002	0
Zinc	mg/L		0.017	0.04	< 0.005	0.007	0.036	72	0.006	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene	mg/L		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	< 0.005	0
TRH >C10-C16	mg/L		0.86	< 0.05	< 0.05	< 0.05	0.82	5	0.78	10
TRH >C10-C16 less Naphthalene (F2)	mg/L		0.86	< 0.05	< 0.05	< 0.05	0.82	5	0.78	10
TRH >C10-C40 (total)*	mg/L		1.36	< 0.1	< 0.1	< 0.1	1.22	11	1.23	10
TRH >C16-C34	mg/L		0.5	< 0.1	< 0.1	< 0.1	0.4	22	0.45	11
TRH >C34-C40	mg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0	< 0.1	0
TRH C6-C10	mg/L		0.32	0.04	< 0.02	< 0.02	0.32	0	0.27	17
TRH C6-C10 less BTEX (F1)	mg/L		0.2	0.04	< 0.02	< 0.02	0.19	5	0.14	35
pH (in-situ)										
	pH		7.6							

Appendix G – Certificates of Analysis

Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **940995-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **Nov 15, 2022**

Client Sample ID			R16 SJO6_UW00 1	R16 SJO6_PW00 1	R16 SJO6_TW00 1	R16 SJO6_DW00 1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0034724	B22- No0034725	B22- No0034726	B22- No0034727
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	1.3	1.1	< 0.01	< 0.01
TRH C10-C14	0.05	mg/L	0.98	6.7	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	1.2	6.5	0.2	< 0.1
TRH C29-C36	0.1	mg/L	0.2	0.8	0.3	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	2.38	14	0.5	< 0.1
BTEX						
Benzene	0.001	mg/L	0.015	0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.019	0.003	0.002	0.002
Ethylbenzene	0.001	mg/L	< 0.01	0.003	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.031	0.008	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.021	0.007	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.052	0.014	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	102	84	100	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	0.53	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.42	5.4	< 0.05	< 0.05
TRH C6-C10	0.01	mg/L	1.4	1.4	< 0.01	< 0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	1.3	1.4	< 0.01	< 0.01
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			R16 SJO6_UW00 1	R16 SJO6_PW00 1	R16 SJO6_TW00 1	R16 SJO6_DW00 1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0034724	B22- No0034725	B22- No0034726	B22- No0034727
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	124	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.95	5.4	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	1.2	5.6	0.3	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	0.8	0.5	0.1
TRH >C10-C40 (total)*	0.1	mg/L	2.15	11.8	0.8	0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	89	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	1000	-	-	-
Chloride	1	mg/L	840	2500	1500	1400
Dissolved Organic Carbon	5	mg/L	200	890	620	780
Nitrate & Nitrite (as N)	0.05	mg/L	0.53	-	-	-
Phosphate total (as P)	0.01	mg/L	3.5	-	-	-
Sulphate (as SO4)	5	mg/L	120	97	76	70
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	33	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	33.53	-	-	-
Total Organic Carbon	5	mg/L	250	980	540	430
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	470	96	< 5	13
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	1800	5000	1300	3100
Carbonate Alkalinity (as CaCO3)	10	mg/L	1900	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	3700	5000	1300	3100
Heavy Metals						
Arsenic	0.001	mg/L	0.20	0.25	0.036	0.019
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.018	0.026	0.018	0.029
Copper	0.001	mg/L	0.067	0.003	< 0.001	0.005
Lead	0.001	mg/L	0.027	0.014	< 0.001	< 0.001
Nickel	0.001	mg/L	0.83	0.79	0.012	0.008
Zinc	0.005	mg/L	0.36	0.80	< 0.005	< 0.005
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	< 5	< 5	< 5	< 5
Magnesium	0.5	mg/L	< 5	< 5	< 5	10
Potassium	0.5	mg/L	220	250	18	16
Sodium	0.5	mg/L	4800	7000	3900	2800
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	G01< 0.5	G01< 0.5	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	N090.25	N090.23	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	N090.11	N090.11	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	N090.13	N090.10	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	N090.050	N090.045	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-

Client Sample ID			R16 SJO6_UW00 1	R16 SJO6_PW00 1	R16 SJO6_TW00 1	R16 SJO6_DW00 1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0034724	B22- No0034725	B22- No0034726	B22- No0034727
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
13C4-PFBA (surr.)	1	%	57	56	-	-
13C5-PFPeA (surr.)	1	%	83	130	-	-
13C5-PFHxA (surr.)	1	%	63	46	-	-
13C4-PFHpA (surr.)	1	%	88	69	-	-
13C8-PFOA (surr.)	1	%	77	65	-	-
13C5-PFNA (surr.)	1	%	91	90	-	-
13C6-PFDA (surr.)	1	%	80	83	-	-
13C2-PFUnDA (surr.)	1	%	139	114	-	-
13C2-PFDoDA (surr.)	1	%	173	145	-	-
13C2-PFTeDA (surr.)	1	%	INT	INT	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
13C8-FOSA (surr.)	1	%	121	109	-	-
D3-N-MeFOSA (surr.)	1	%	95	86	-	-
D5-N-EtFOSA (surr.)	1	%	80	67	-	-
D7-N-MeFOSE (surr.)	1	%	78	70	-	-
D9-N-EtFOSE (surr.)	1	%	53	41	-	-
D5-N-EtFOSAA (surr.)	1	%	185	109	-	-
D3-N-MeFOSAA (surr.)	1	%	162	95	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	N090.82	N090.68	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	N090.17	N090.078	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	N093.9	N090.97	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
13C3-PFBS (surr.)	1	%	40	77	-	-
18O2-PFHxS (surr.)	1	%	84	95	-	-
13C8-PFOS (surr.)	1	%	95	82	-	-

Client Sample ID			R16 SJO6_UW00 1	R16 SJO6_PW00 1	R16 SJO6_TW00 1	R16 SJO6_DW00 1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0034724	B22- No0034725	B22- No0034726	B22- No0034727
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	G01< 0.5	G01< 0.5	-	-
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.26	0.24	-	-
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
13C2-4:2 FTSA (surr.)	1	%	16	21	-	-
13C2-6:2 FTSA (surr.)	1	%	40	INT	-	-
13C2-8:2 FTSA (surr.)	1	%	97	77	-	-
13C2-10:2 FTSA (surr.)	1	%	159	127	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	4.72	1.65	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	4.03	1.07	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	4.85	1.75	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	5.47	2.33	-	-
Sum of PFASs (n=30)*	0.005	ug/L	5.69	2.453	-	-
Per- and Polyfluoroalkyl Substances (PFASs)						
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	0.01	ug/L	-	-	< 0.01	< 0.01
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoroethylcyclohexane sulfonate (PFECHS)	0.01	ug/L	-	-	< 0.01	< 0.01
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	-	-	< 0.005	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	< 0.005	< 0.005
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
13C8-FOSA (surr.)	1	%	-	-	89	73
D3-N-MeFOSA (surr.)	1	%	-	-	69	69
D5-N-EtFOSA (surr.)	1	%	-	-	53	69
D7-N-MeFOSE (surr.)	1	%	-	-	62	69
D9-N-EtFOSE (surr.)	1	%	-	-	52	72
D5-N-EtFOSAA (surr.)	1	%	-	-	65	57
D3-N-MeFOSAA (surr.)	1	%	-	-	76	58

Client Sample ID			R16 SJO6_UW00 1	R16 SJO6_PW00 1	R16 SJO6_TW00 1	R16 SJO6_DW00 1
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0034724	B22- No0034725	B22- No0034726	B22- No0034727
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	-	-	62	87
13C5-PFPeA (surr.)	1	%	-	-	116	108
13C5-PFHxA (surr.)	1	%	-	-	110	89
13C4-PFHpA (surr.)	1	%	-	-	121	97
13C8-PFOA (surr.)	1	%	-	-	105	65
13C5-PFNA (surr.)	1	%	-	-	107	66
13C6-PFDA (surr.)	1	%	-	-	83	60
13C2-PFUnDA (surr.)	1	%	-	-	98	56
13C2-PFDoDA (surr.)	1	%	-	-	68	62
13C2-PFTeDA (surr.)	1	%	-	-	79	94
Perfluoroalkyl sulfonic acids (PFSA)s - Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	-	-	85	66
18O2-PFHxS (surr.)	1	%	-	-	79	71
13C8-PFOS (surr.)	1	%	-	-	90	72
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s - Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	-	-	52	53
13C2-6:2 FTSA (surr.)	1	%	-	-	77	63
13C2-8:2 FTSA (surr.)	1	%	-	-	111	61
13C2-10:2 FTSA (surr.)	1	%	-	-	69	52

Client Sample ID			SJO6_QCD001	SJO6_QCT001	SJO6_QW001
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B22- No0034728	B22- No0034729	B22- No0034730
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit			
Per- and Polyfluoroalkyl Substances (PFASs)					
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	0.01	ug/L	< 0.01	< 0.01	< 0.01
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	0.01	ug/L	< 0.01	< 0.01	< 0.01
Perfluoroethylcyclohexane sulfonate (PFECBS)	0.01	ug/L	< 0.01	< 0.01	< 0.01
PFASs Summations					
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005	< 0.005	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005	< 0.005	< 0.005
Perfluoroalkyl sulfonamido substances- Trace					
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002
13C8-FOSA (surr.)	1	%	63	90	62
D3-N-MeFOSA (surr.)	1	%	55	96	41
D5-N-EtFOSA (surr.)	1	%	57	75	28
D7-N-MeFOSE (surr.)	1	%	58	98	43
D9-N-EtFOSE (surr.)	1	%	59	86	31
D5-N-EtFOSAA (surr.)	1	%	50	78	39
D3-N-MeFOSAA (surr.)	1	%	48	71	46
Perfluoroalkyl carboxylic acids (PFCAs) - Trace					
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	75	107	77
13C5-PFPeA (surr.)	1	%	95	124	96
13C5-PFHxA (surr.)	1	%	64	93	92
13C4-PFHpA (surr.)	1	%	90	117	98
13C8-PFOA (surr.)	1	%	61	84	88
13C5-PFNA (surr.)	1	%	57	80	58
13C6-PFDA (surr.)	1	%	52	78	59
13C2-PFUnDA (surr.)	1	%	48	73	54
13C2-PFDoDA (surr.)	1	%	53	69	37
13C2-PFTeDA (surr.)	1	%	61	68	45

Client Sample ID			SJO6_QCD001	SJO6_QCT001	SJO6_QW001
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B22- No0034728	B22- No0034729	B22- No0034730
Date Sampled			Nov 14, 2022	Nov 14, 2022	Nov 14, 2022
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonic acids (PFASs)- Trace					
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	68	94	72
18O2-PFHxS (surr.)	1	%	60	88	64
13C8-PFOS (surr.)	1	%	60	83	62
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	52	72	45
13C2-6:2 FTSA (surr.)	1	%	59	78	55
13C2-8:2 FTSA (surr.)	1	%	56	74	44
13C2-10:2 FTSA (surr.)	1	%	43	69	31

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Nov 22, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Nov 16, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 16, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Nov 22, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Chlorinated Hydrocarbons	Melbourne	Nov 16, 2022	7 Days
- Method: USEPA 8121 Chlorinated Hydrocarbons			
Biochemical Oxygen Demand (BOD-5 Day)	Brisbane	Nov 15, 2022	2 Days
- Method: APHA 5210B			
Chemical Oxygen Demand (COD)	Melbourne	Nov 17, 2022	28 Days
- Method: LTM-INO-4220 Determination of COD in Water			
Dissolved Organic Carbon	Melbourne	Nov 16, 2022	28 Days
- Method: APHA 5310B Dissolved Organic Carbon			
Total Organic Carbon	Melbourne	Nov 16, 2022	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103 °C to 105 °C	Brisbane	Nov 15, 2022	7 Days
- Method: APHA 2540 D			
Metals M7	Brisbane	Nov 15, 2022	180 Days
- Method: USEPA 6010/6020 Heavy Metals			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Nov 16, 2022	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			
Per- and Polyfluoroalkyl Substances (PFASs)			
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroethylcyclohexane sulfonate (PFECBS)	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Eurofins Suite B11E: Cl/SO ₄ /Alkalinity			
Chloride	Melbourne	Nov 16, 2022	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO ₄)	Melbourne	Nov 16, 2022	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Nov 16, 2022	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Nov 16, 2022	28 Days
- Method: LTM-INO-4120 Analysis of NO _x NO ₂ NH ₃ by FIA			
Total Kjeldahl Nitrogen (as N)	Melbourne	Nov 16, 2022	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B19A: Total N (TKN, NO _x), Total P			
Phosphate total (as P)	Melbourne	Nov 16, 2022	28 Days
- Method: LTM-INO-4040 Phosphate by CFA			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Nov 15, 2022	28 Days

Description	Testing Site	Extracted	Holding Time
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Nov 15, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 940995
Phone: 1300 727 527
Fax:

Received: Nov 15, 2022 5:50 PM
Due: Nov 17, 2022
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail						3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Perfluoroethylcyclohexane sulfonate (PFECBS)	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254									X	X		X		X		X	X	X	X		X	
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X			X		X		X	X	X			X		X
External Laboratory																						
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																	
1	SJO6_UW001	Nov 14, 2022		Water	B22-No0034724			X	X	X		X	X	X	X	X		X	X	X	X	
2	SJO6_PW001	Nov 14, 2022		Water	B22-No0034725					X		X	X		X		X		X	X	X	
3	SJO6_TW001	Nov 14, 2022		Water	B22-No0034726	X	X			X	X	X	X		X		X		X		X	X
4	SJO6_DW001	Nov 14, 2022		Water	B22-No0034727	X	X			X	X	X	X		X		X		X		X	X
5	SJO6_QCD001	Nov 14, 2022		Water	B22-No0034728	X	X				X											X
6	SJO6_QCT001	Nov 14, 2022		Water	B22-No0034729	X	X				X											X
7	SJO6_QW001	Nov 14, 2022		Water	B22-No0034730	X	X				X											X
Test Counts						5	5	1	1	4	5	4	4	1	4	4	4	1	4	2	4	5

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.01			0.01	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSa)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs)							
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	ug/L	< 0.01			0.01	Pass	
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	ug/L	< 0.01			0.01	Pass	
Perfluoroethylcyclohexane sulfonate (PFECBS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	120			70-130	Pass	
TRH C10-C14	%	91			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	102			70-130	Pass	
Toluene	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	%	93			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
Xylenes - Total*	%	93			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	114			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	93			70-130	Pass	
Chloride	%	91			70-130	Pass	
Nitrate & Nitrite (as N)	%	108			70-130	Pass	
Phosphate total (as P)	%	120			70-130	Pass	
Sulphate (as SO4)	%	118			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	83			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	102			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	95			70-130	Pass	
Total Alkalinity (as CaCO3)	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	91			80-120	Pass	
Cadmium	%	94			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	101			80-120	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	96			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	85			80-120	Pass	
Magnesium	%	99			80-120	Pass	
Potassium	%	96			80-120	Pass	
Sodium	%	98			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	131			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	86			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	120			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	114			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	119			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	106			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	95			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	108			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	94			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	122			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	111			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	88			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	110			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	133			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	118			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	111			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	72			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	104			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	108			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	72			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	121			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	58			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	126			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	147			50-150	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFAS's)							
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	%	60			50-150	Pass	
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	%	65			50-150	Pass	
Perfluoroethylcyclohexane sulfonate (PFECHS)	%	70			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	111			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	88			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	110			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	133			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	118			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	111			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	131			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	86			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	120			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	114			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	119			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	106			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	95			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	108			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	122			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	72			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	104			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	108			50-150	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanesulfonic acid (PFPeS)				%	72			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)				%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)				%	121			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)				%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)				%	58			50-150	Pass	
LCS - % Recovery										
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace										
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)				%	126			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)				%	92			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)				%	118			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)				%	147			50-150	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
					Result 1					
Chemical Oxygen Demand (COD)	S22-No0035904	NCP		%	114			70-130	Pass	
Nitrate & Nitrite (as N)	S22-No0024600	NCP		%	86			70-130	Pass	
Phosphate total (as P)	S22-No0024599	NCP		%	93			70-130	Pass	
Sulphate (as SO4)	S22-No0024597	NCP		%	124			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	S22-No0036131	NCP		%	74			70-130	Pass	
Spike - % Recovery										
Eurofins Suite B11C: Na/K/Ca/Mg					Result 1					
Calcium	M22-No0036075	NCP		%	88			75-125	Pass	
Magnesium	M22-No0036075	NCP		%	102			75-125	Pass	
Potassium	M22-No0036075	NCP		%	94			75-125	Pass	
Sodium	M22-No0036075	NCP		%	95			75-125	Pass	
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCAs)					Result 1					
Perfluorobutanoic acid (PFBA)	B22-No0034725	CP		%	140			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-No0034725	CP		%	116			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-No0034725	CP		%	139			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-No0034725	CP		%	131			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-No0034725	CP		%	125			50-150	Pass	
Perfluorononanoic acid (PFNA)	B22-No0034725	CP		%	121			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B22-No0034725	CP		%	144			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-No0034725	CP		%	115			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B22-No0034725	CP		%	136			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B22-No0034725	CP		%	110			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-No0034725	CP		%	112			50-150	Pass	
Spike - % Recovery										
Perfluoroalkyl sulfonamido substances					Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-No0034725	CP		%	126			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-No0034725	CP		%	121			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-No0034725	CP		%	113			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-No0034725	CP		%	108			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-No0034725	CP		%	132			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-No0034725	CP		%	117			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-No0034725	CP	%	112			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-No0034725	CP	%	89			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-No0034725	CP	%	130			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-No0034725	CP	%	62			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-No0034725	CP	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-No0034725	CP	%	110			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-No0034725	CP	%	139			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-No0034725	CP	%	146			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-No0034725	CP	%	132			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-No0034725	CP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B22-No0034725	CP	%	72			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-No0034725	CP	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-No0034725	CP	%	115			50-150	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs)				Result 1					
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	B22-No0034725	CP	%	96			50-150	Pass	
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	B22-No0034725	CP	%	110			50-150	Pass	
Perfluoroethylcyclohexane sulfonate (PFECHS)	B22-No0034725	CP	%	70			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B22-No0034726	CP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B22-No0034726	CP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B22-No0034727	CP	%	91			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B22-No0034727	CP	%	86			70-130	Pass	
Toluene	B22-No0034727	CP	%	83			70-130	Pass	
Ethylbenzene	B22-No0034727	CP	%	83			70-130	Pass	
m&p-Xylenes	B22-No0034727	CP	%	81			70-130	Pass	
o-Xylene	B22-No0034727	CP	%	81			70-130	Pass	
Xylenes - Total*	B22-No0034727	CP	%	81			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B22-No0034727	CP	%	91			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B22-No0034727	CP	%	101			75-125	Pass	
Cadmium	B22-No0034727	CP	%	92			75-125	Pass	
Chromium	B22-No0034727	CP	%	89			75-125	Pass	
Copper	B22-No0034727	CP	%	83			75-125	Pass	
Lead	B22-No0034727	CP	%	87			75-125	Pass	
Nickel	B22-No0034727	CP	%	86			75-125	Pass	
Zinc	B22-No0034727	CP	%	84			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	L22-No0014900	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	L22-No0014900	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	M22-No0035499	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	L22-No0014900	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Biochemical Oxygen Demand (BOD-5 Day)	B22-No0034724	CP	mg/L	89	110	25	30%	Pass	
Chemical Oxygen Demand (COD)	M22-No0037283	NCP	mg/L	7300	6800	7.4	30%	Pass	
Chloride	M22-No0036076	NCP	mg/L	190	220	18	30%	Pass	
Nitrate & Nitrite (as N)	M22-No0035927	NCP	mg/L	59	58	<1	30%	Pass	
Phosphate total (as P)	M22-No0016835	NCP	mg/L	0.62	0.55	12	30%	Pass	
Sulphate (as SO4)	M22-No0036076	NCP	mg/L	60	61	2.3	30%	Pass	
Total Kjeldahl Nitrogen (as N)	S22-Oc0007654	NCP	mg/L	< 0.2	< 0.2	<1	30%	Pass	
Total Organic Carbon	B22-No0035065	NCP	mg/L	32	29	8.8	30%	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	B22-No0034724	CP	mg/L	470	400	16	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Cadmium	B22-No0024405	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Lead	B22-No0022067	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Calcium	M22-No0036075	NCP	mg/L	29	29	<1	30%	Pass	
Magnesium	M22-No0036075	NCP	mg/L	23	23	1.6	30%	Pass	
Potassium	M22-No0036075	NCP	mg/L	4.5	4.5	1.6	30%	Pass	
Sodium	M22-No0036075	NCP	mg/L	87	87	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B22-No0034724	CP	ug/L	0.25	0.22	13	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B22-No0034724	CP	ug/L	0.11	0.11	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B22-No0034724	CP	ug/L	0.13	0.13	6.1	30%	Pass
Perfluorononanoic acid (PFNA)	B22-No0034724	CP	ug/L	0.050	0.046	7.2	30%	Pass
Perfluorodecanoic acid (PFDA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-No0034724	CP	ug/L	0.82	0.93	12	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-No0034724	CP	ug/L	0.17	0.19	12	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-No0034724	CP	ug/L	3.9	4.3	11	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<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)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-No0034724	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-No0034724	CP	ug/L	0.26	0.28	8.2	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass

Duplicate								
Per- and Polyfluoroalkyl Substances (PFASs)				Result 1	Result 2	RPD		
3:3 Fluorotelomercarboxylic acid (3:3 FTCA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoroethylcyclohexane sulfonate (PFECBS)	B22-No0034724	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	M22-No0036129	NCP	mg/L	560	410	1.9	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	M22-No0036129	NCP	mg/L	< 10	< 10	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	M22-No0036129	NCP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	M22-No0036129	NCP	mg/L	560	410	1.9	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	B22-No0034726	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	B22-No0034726	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	B22-No0034726	CP	mg/L	0.002	0.002	5.8	30%	Pass
Ethylbenzene	B22-No0034726	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	B22-No0034726	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	B22-No0034726	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	B22-No0034726	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	B22-No0034726	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	B22-No0034726	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B22-No0034726	CP	mg/L	0.036	0.036	<1	30%	Pass
Chromium	B22-No0034726	CP	mg/L	0.018	0.018	3.8	30%	Pass
Copper	B22-No0034726	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Nickel	B22-No0034726	CP	mg/L	0.012	0.012	4.2	30%	Pass
Zinc	B22-No0034726	CP	mg/L	< 0.005	< 0.005	<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
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
R16	The LORs have been raised due to the high concentration of one or more analytes

Authorised by:

Peter Brand	Analytical Services Manager
Harry Bacalis	Senior Analyst-Volatile
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Joseph Edouard	Senior Analyst-Organic
Mary Makarios	Senior Analyst-Inorganic
Sarah McCallion	Senior Analyst-Organic
Scott Beddoes	Senior Analyst-Inorganic
Scott Beddoes	Senior Analyst-Metal



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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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: Data

Report 945906-W
Project name SJO6
Project ID SJO6
Received Date Nov 30, 2022

Client Sample ID			SJO6_DW002
Sample Matrix			Water
Eurofins Sample No.			B22- No0073103
Date Sampled			Nov 29, 2022
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	90
D3-N-MeFOSA (surr.)	1	%	56
D5-N-EtFOSA (surr.)	1	%	51
D7-N-MeFOSE (surr.)	1	%	68
D9-N-EtFOSE (surr.)	1	%	57
D5-N-EtFOSAA (surr.)	1	%	72
D3-N-MeFOSAA (surr.)	1	%	68
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW002
Sample Matrix			Water
Eurofins Sample No.			B22- No0073103
Date Sampled			Nov 29, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	91
13C5-PFPeA (surr.)	1	%	101
13C5-PFHxA (surr.)	1	%	115
13C4-PFHpA (surr.)	1	%	140
13C8-PFOA (surr.)	1	%	70
13C5-PFNA (surr.)	1	%	71
13C6-PFDA (surr.)	1	%	112
13C2-PFUnDA (surr.)	1	%	79
13C2-PFDoDA (surr.)	1	%	73
13C2-PFTeDA (surr.)	1	%	59
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	106
18O2-PFHxS (surr.)	1	%	137
13C8-PFOS (surr.)	1	%	119
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	INT
13C2-6:2 FTSA (surr.)	1	%	INT
13C2-8:2 FTSA (surr.)	1	%	71
13C2-10:2 FTSA (surr.)	1	%	91

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 945906
Phone: 1300 727 527
Fax:

Received: Nov 30, 2022 4:28 PM
Due: Dec 1, 2022
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs) - Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW002	Nov 29, 2022		Water	B22-No0073103	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	82			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	85			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	81			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	94			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	134			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	142			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	127			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	107			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	110			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	84			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	96			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	105			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	77			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	101			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	91			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	126			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	93			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	95			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	73			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	105			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	96			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	95			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	106			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-No0063674	NCP	%	76			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-No0063674	NCP	%	100			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-No0063674	NCP	%	87			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-No0063674	NCP	%	99			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-No0063674	NCP	%	118			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-No0063674	NCP	%	143			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-No0063674	NCP	%	135			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)s - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B22-No0063674	NCP	%	130			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-No0063674	NCP	%	115			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-No0063674	NCP	%	109			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-No0063674	NCP	%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-No0063674	NCP	%	108			50-150	Pass	
Perfluorononanoic acid (PFNA)	B22-No0063674	NCP	%	103			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B22-No0063674	NCP	%	70			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B22-No0063674	NCP	%	116			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-No0063674	NCP	%	96			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B22-No0063674	NCP	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-No0063674	NCP	%	134			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-No0063674	NCP	%	72			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-No0063674	NCP	%	91			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-No0063674	NCP	%	100			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-No0063674	NCP	%	61			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-No0063674	NCP	%	93			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-No0063674	NCP	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-No0063674	NCP	%	84			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-No0063674	NCP	%	67			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-No0063674	NCP	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-No0063674	NCP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-No0063674	NCP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-No0063674	NCP	%	113			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B22-No0063693	NCP	ug/L	0.084	0.082	1.7	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-No0063693	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-No0063693	NCP	ug/L	< 0.001	< 0.001	<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	N/A
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:

Zoe Flynn Analytical Services Manager
 Jonathon Angell Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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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: Data

Report 945909-W
Project name SJO6
Project ID SJO6
Received Date Nov 30, 2022

Client Sample ID			SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0073108	B22- No0073109	B22- No0073110	B22- No0073111
Date Sampled			Nov 29, 2022	Nov 29, 2022	Nov 29, 2022	Nov 29, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.001	mg/L	0.008	0.002	< 0.001	< 0.001
Toluene	0.001	mg/L	0.036	0.012	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.016	0.005	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.078	0.019	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.067	0.013	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.14	0.032	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	100	98	113	112
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	0.09	0.02	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	9.91	7.78	< 0.05	< 0.05
TRH C6-C10	0.01	mg/L	6.5	0.89	< 0.01	< 0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	6.3	0.84	< 0.01	< 0.01
Total Recoverable Hydrocarbons						
TRH C6-C9	0.01	mg/L	6.0	1.00	< 0.01	< 0.01
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C10-C14	0.05	mg/L	6.9	10	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	27	7.2	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	4.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	38	17.2	< 0.1	< 0.1
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-No0073108	B22-No0073109	B22-No0073110	B22-No0073111
Date Sampled			Nov 29, 2022	Nov 29, 2022	Nov 29, 2022	Nov 29, 2022
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	52	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	10	7.8	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	27	5.5	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	1.3	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	38.3	13.3	< 0.1	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	1300	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	2800	-	-	-
Chloride	1	mg/L	1500	1200	1100	24
Dissolved Organic Carbon	5	mg/L	230	680	240	< 5
Nitrate & Nitrite (as N)	0.05	mg/L	0.72	-	-	-
Phosphate total (as P)	0.01	mg/L	1.9	-	-	-
Sulphate (as SO4)	5	mg/L	87	1700	99	9.5
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	39	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	39.72	-	-	-
Total Organic Carbon	5	mg/L	240	830	240	< 5
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	750	69	6.8	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	2700	1700	58
Carbonate Alkalinity (as CaCO3)	10	mg/L	5800	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	640	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	6500	2700	1700	58
Heavy Metals						
Arsenic	0.001	mg/L	0.29	0.096	0.071	< 0.001
Cadmium	0.0002	mg/L	0.0005	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.19	0.021	0.068	< 0.001
Copper	0.001	mg/L	0.87	0.004	0.006	< 0.001
Lead	0.001	mg/L	0.23	0.008	< 0.001	< 0.001
Nickel	0.001	mg/L	2.2	0.78	0.21	< 0.001
Zinc	0.005	mg/L	2.1	0.19	0.029	0.006
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	4.2	< 1	2.7	4.9
Magnesium	0.5	mg/L	< 1	1.3	7.3	2.4
Potassium	0.5	mg/L	260	160	9.1	1.5
Sodium	0.5	mg/L	7300	3000	1400	27
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	G01< 0.5	G01< 0.5	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-

Client Sample ID			SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0073108	B22- No0073109	B22- No0073110	B22- No0073111
Date Sampled			Nov 29, 2022	Nov 29, 2022	Nov 29, 2022	Nov 29, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
13C4-PFBA (surr.)	1	%	63	81	-	-
13C5-PFPeA (surr.)	1	%	51	60	-	-
13C5-PFHxA (surr.)	1	%	76	94	-	-
13C4-PFHpA (surr.)	1	%	84	100	-	-
13C8-PFOA (surr.)	1	%	93	107	-	-
13C5-PFNA (surr.)	1	%	100	117	-	-
13C6-PFDA (surr.)	1	%	109	122	-	-
13C2-PFUnDA (surr.)	1	%	100	108	-	-
13C2-PFDoDA (surr.)	1	%	118	104	-	-
13C2-PFTeDA (surr.)	1	%	111	113	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	G01< 0.5	G01< 0.5	-	-
13C8-FOSA (surr.)	1	%	171	178	-	-
D3-N-MeFOSA (surr.)	1	%	125	128	-	-
D5-N-EtFOSA (surr.)	1	%	141	130	-	-
D7-N-MeFOSE (surr.)	1	%	116	105	-	-
D9-N-EtFOSE (surr.)	1	%	118	116	-	-
D5-N-EtFOSAA (surr.)	1	%	77	73	-	-
D3-N-MeFOSAA (surr.)	1	%	77	76	-	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	G02< 0.1	G01< 0.1	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	N09 0.43	G01< 0.1	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	G01< 0.1	G01< 0.1	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	N09 2.1	N09 2.5	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	G02< 0.1	G01< 0.1	-	-
13C3-PFBS (surr.)	1	%	93	97	-	-
18O2-PFHxS (surr.)	1	%	96	110	-	-
13C8-PFOS (surr.)	1	%	133	132	-	-

Client Sample ID			SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0073108	B22- No0073109	B22- No0073110	B22- No0073111
Date Sampled			Nov 29, 2022	Nov 29, 2022	Nov 29, 2022	Nov 29, 2022
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	G02 < 0.1	G01 < 0.1	-	-
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	G02 < 0.5	G01 < 0.5	-	-
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	G02 < 0.1	G01 < 0.1	-	-
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	G02 < 0.1	G01 < 0.5	-	-
13C2-4:2 FTSA (surr.)	1	%	59	56	-	-
13C2-6:2 FTSA (surr.)	1	%	95	96	-	-
13C2-8:2 FTSA (surr.)	1	%	67	56	-	-
13C2-10:2 FTSA (surr.)	1	%	63	57	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	2.53	2.5	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	2.1	2.5	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	2.53	2.5	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	2.53	2.5	-	-
Sum of PFASs (n=30)*	0.005	ug/L	2.53	2.5	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	< 0.005	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	< 0.005	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
13C8-FOSA (surr.)	1	%	-	-	69	-
D3-N-MeFOSA (surr.)	1	%	-	-	23	-
D5-N-EtFOSA (surr.)	1	%	-	-	18	-
D7-N-MeFOSE (surr.)	1	%	-	-	51	-
D9-N-EtFOSE (surr.)	1	%	-	-	56	-
D5-N-EtFOSAA (surr.)	1	%	-	-	52	-
D3-N-MeFOSAA (surr.)	1	%	-	-	66	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-

Client Sample ID			SJO6_UW002	SJO6_PW002	SJO6_TW002	SJO6_DW002
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22- No0073108	B22- No0073109	B22- No0073110	B22- No0073111
Date Sampled			Nov 29, 2022	Nov 29, 2022	Nov 29, 2022	Nov 29, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	88	-
13C5-PFPeA (surr.)	1	%	-	-	92	-
13C5-PFHxA (surr.)	1	%	-	-	120	-
13C4-PFHpA (surr.)	1	%	-	-	121	-
13C8-PFOA (surr.)	1	%	-	-	115	-
13C5-PFNA (surr.)	1	%	-	-	106	-
13C6-PFDA (surr.)	1	%	-	-	82	-
13C2-PFUnDA (surr.)	1	%	-	-	87	-
13C2-PFDoDA (surr.)	1	%	-	-	64	-
13C2-PFTeDA (surr.)	1	%	-	-	14	-
Perfluoroalkyl sulfonic acids (PFSA)s - Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	38	-
18O2-PFHxS (surr.)	1	%	-	-	37	-
13C8-PFOS (surr.)	1	%	-	-	113	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s - Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	23	-
13C2-6:2 FTSA (surr.)	1	%	-	-	143	-
13C2-8:2 FTSA (surr.)	1	%	-	-	64	-
13C2-10:2 FTSA (surr.)	1	%	-	-	52	-

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
BTEX	Brisbane	Dec 01, 2022	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Dec 01, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Brisbane	Dec 01, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Dec 01, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Dec 01, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Chlorinated Hydrocarbons	Melbourne	Dec 01, 2022	7 Days
- Method: USEPA 8121 Chlorinated Hydrocarbons			
Biochemical Oxygen Demand (BOD-5 Day)	Brisbane	Dec 09, 2022	2 Days
- Method: APHA 5210B			
Chemical Oxygen Demand (COD)	Melbourne	Dec 02, 2022	28 Days
- Method: LTM-INO-4220 Determination of COD in Water			
Dissolved Organic Carbon	Melbourne	Dec 01, 2022	28 Days
- Method: APHA 5310B Dissolved Organic Carbon			
Total Organic Carbon	Melbourne	Dec 01, 2022	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103 °C to 105 °C	Brisbane	Dec 01, 2022	7 Days
- Method: APHA 2540 D			
Metals M7	Brisbane	Dec 01, 2022	180 Days
- Method: USEPA 6010/6020 Heavy Metals			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Dec 01, 2022	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Melbourne	Dec 01, 2022	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Melbourne	Dec 01, 2022	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Dec 01, 2022	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Dec 01, 2022	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Total Kjeldahl Nitrogen (as N)	Melbourne	Dec 01, 2022	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphate total (as P)	Melbourne	Dec 01, 2022	28 Days
- Method: LTM-INO-4040 Phosphate by CFA			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSA)s	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Dec 01, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			

Description	Testing Site	Extracted	Holding Time
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 01, 2022	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 01, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 01, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 01, 2022	28 Days

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 945909
Phone: 1300 727 527
Fax:

Received: Nov 30, 2022 4:28 PM
Due: Dec 5, 2022
Priority: 3 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X		X	X	X	X	X		X	
Brisbane Laboratory - NATA # 1261 Site # 20794						X				X		X	X			X		X
External Laboratory																		
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID													
1	SJO6_UW002	Nov 29, 2022		Water	B22-No0073108	X	X	X	X	X	X	X	X	X	X	X	X	
2	SJO6_PW002	Nov 29, 2022		Water	B22-No0073109			X	X	X		X	X		X	X	X	
3	SJO6_TW002	Nov 29, 2022		Water	B22-No0073110			X	X	X		X	X		X		X	X
4	SJO6_DW002	Nov 29, 2022		Water	B22-No0073111			X	X	X		X	X		X		X	
Test Counts						1	1	4	4	4	1	4	4	1	4	2	4	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	84			70-130	Pass	
Toluene	%	92			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
Xylenes - Total*	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	%	101			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	99			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	105			70-130	Pass	
Chloride	%	102			70-130	Pass	
Nitrate & Nitrite (as N)	%	107			70-130	Pass	
Phosphate total (as P)	%	104			70-130	Pass	
Sulphate (as SO ₄)	%	122			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	80			70-130	Pass	
Total Organic Carbon	%	113			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	102			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	98			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	84			80-120	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium				%	88			80-120	Pass	
Chromium				%	95			80-120	Pass	
Copper				%	93			80-120	Pass	
Lead				%	93			80-120	Pass	
Nickel				%	95			80-120	Pass	
Zinc				%	91			80-120	Pass	
LCS - % Recovery										
Eurofins Suite B11C: Na/K/Ca/Mg										
Calcium				%	90			80-120	Pass	
Magnesium				%	98			80-120	Pass	
Potassium				%	102			80-120	Pass	
Sodium				%	85			80-120	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Chlorinated Hydrocarbons					Result 1					
1,2-Dichlorobenzene	M22-No0064125	NCP	%	78				70-130	Pass	
1,2,4-Trichlorobenzene	M22-No0064125	NCP	%	101				70-130	Pass	
1,4-Dichlorobenzene	M22-No0064125	NCP	%	83				70-130	Pass	
Hexachlorobenzene	B22-No0071488	NCP	%	75				70-130	Pass	
Spike - % Recovery										
					Result 1					
Chemical Oxygen Demand (COD)	M22-De0001706	NCP	%	83				70-130	Pass	
Nitrate & Nitrite (as N)	M22-No0071601	NCP	%	100				70-130	Pass	
Total Kjeldahl Nitrogen (as N)	W22-No0071596	NCP	%	90				70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Arsenic	B22-No0068339	NCP	%	91				75-125	Pass	
Cadmium	B22-No0068339	NCP	%	94				75-125	Pass	
Chromium	B22-No0068339	NCP	%	97				75-125	Pass	
Copper	B22-No0068339	NCP	%	94				75-125	Pass	
Lead	B22-No0068339	NCP	%	96				75-125	Pass	
Nickel	B22-No0068339	NCP	%	97				75-125	Pass	
Zinc	B22-No0068339	NCP	%	97				75-125	Pass	
Spike - % Recovery										
Eurofins Suite B11C: Na/K/Ca/Mg					Result 1					
Calcium	B22-No0062598	NCP	%	102				75-125	Pass	
Magnesium	B22-No0062598	NCP	%	113				75-125	Pass	
Potassium	B22-No0062598	NCP	%	110				75-125	Pass	
Sodium	B22-No0070557	NCP	%	91				75-125	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C10-C14	B22-No0068999	NCP	%	99				70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	B22-No0068999	NCP	%	97				70-130	Pass	
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCAs)					Result 1					
Perfluorobutanoic acid (PFBA)	B22-No0073109	CP	%	67				50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-No0073109	CP	%	68				50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-No0073109	CP	%	68				50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-No0073109	CP	%	72				50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-No0073109	CP	%	72				50-150	Pass	
Perfluorononanoic acid (PFNA)	B22-No0073109	CP	%	73				50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorodecanoic acid (PFDA)	B22-No0073109	CP	%	66			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-No0073109	CP	%	69			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B22-No0073109	CP	%	67			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B22-No0073109	CP	%	60			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-No0073109	CP	%	67			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-No0073109	CP	%	64			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-No0073109	CP	%	69			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-No0073109	CP	%	63			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-No0073109	CP	%	70			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-No0073109	CP	%	65			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-No0073109	CP	%	68			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-No0073109	CP	%	59			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-No0073109	CP	%	62			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-No0073109	CP	%	61			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-No0073109	CP	%	54			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-No0073109	CP	%	59			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-No0073109	CP	%	71			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-No0073109	CP	%	77			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-No0073109	CP	%	61			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-No0073109	CP	%	56			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-No0073109	CP	%	69			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-No0073109	CP	%	73			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-No0073109	CP	%	66			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-No0073109	CP	%	63			50-150	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B22-No0073110	CP	%	77			70-130	Pass	
Toluene	B22-No0073110	CP	%	85			70-130	Pass	
Ethylbenzene	B22-No0073110	CP	%	86			70-130	Pass	
m&p-Xylenes	B22-No0073110	CP	%	92			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	B22-No0073110	CP	%	92			70-130	Pass	
Xylenes - Total*	B22-No0073110	CP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B22-No0073110	CP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	B22-No0073110	CP	%	93			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	M22-De0001327	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	M22-De0001327	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	M22-De0001327	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Biochemical Oxygen Demand (BOD-5 Day)	B22-No0073108	CP	mg/L	1300	1200	3.2	30%	Pass	
Chemical Oxygen Demand (COD)	B22-No0067465	NCP	mg/L	< 25	< 25	<1	30%	Pass	
Chloride	B22-No0062603	NCP	mg/L	19000	20000	1.6	30%	Pass	
Nitrate & Nitrite (as N)	M22-De0002401	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Phosphate total (as P)	B22-No0066716	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Sulphate (as SO ₄)	B22-No0062603	NCP	mg/L	2200	2200	1.1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	B22-No0073108	CP	mg/L	39	35	9.8	30%	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	B22-No0068999	NCP	mg/L	380	360	4.4	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M22-De0002625	NCP	mg/L	1600	1600	3.7	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M22-De0002625	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M22-De0002625	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M22-De0002625	NCP	mg/L	1600	1600	3.7	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B22-No0068338	NCP	mg/L	0.007	0.007	<1	30%	Pass	
Cadmium	B22-No0070014	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B22-No0068338	NCP	mg/L	0.003	0.002	14	30%	Pass	
Copper	B22-No0068338	NCP	mg/L	0.002	0.001	4.6	30%	Pass	
Lead	B22-No0068338	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	B22-No0068338	NCP	mg/L	0.001	0.001	4.7	30%	Pass	
Zinc	B22-No0068338	NCP	mg/L	0.036	0.036	<1	30%	Pass	

Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	W22-No0067601	NCP	mg/L	190	190	<1	30%	Pass
Magnesium	W22-No0067601	NCP	mg/L	290	290	<1	30%	Pass
Potassium	W22-No0067601	NCP	mg/L	27	27	<1	30%	Pass
Sodium	B22-No0062598	NCP	mg/L	5500	5400	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-No0073108	CP	ug/L	0.43	0.56	28	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-No0073108	CP	ug/L	2.1	2.6	20	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<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)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-No0073108	CP	ug/L	< 0.5	< 0.5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (8:2 FTSA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-No0073108	CP	ug/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	B22-No0067385	NCP	mg/L	1.4	1.2	11	30%	Pass
TRH C15-C28	B22-No0067385	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	B22-No0067385	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B22-No0067385	NCP	mg/L	0.56	0.50	11	30%	Pass
TRH >C16-C34	B22-No0067385	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	B22-No0067385	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
BTX				Result 1	Result 2	RPD		
Benzene	B22-No0073111	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	B22-No0073111	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	B22-No0073111	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	B22-No0073111	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	B22-No0073111	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	B22-No0073111	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	B22-No0073111	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	B22-No0073111	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	B22-No0073111	CP	mg/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
G01	The LORs have been raised due to matrix interference
G02	The LORs have been raised as there was insufficient sample provided for analysis
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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:

Zoe Flynn	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal
Scott Beddoes	Senior Analyst-Inorganic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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 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: **Data**

Report **948107-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **Dec 07, 2022**

Client Sample ID			SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0015574	B22-De0015575	B22-De0015576	B22-De0015577
Date Sampled			Dec 07, 2022	Dec 07, 2022	Dec 07, 2022	Dec 07, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	< 0.01	0.32	< 0.01	< 0.01
TRH C10-C14	0.05	mg/L	< 0.05	4.2	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	4.6	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	0.4	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	9.24	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.002	0.002	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	0.002	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	0.004	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	107	109	111	119
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	3.7	< 0.05	< 0.05
TRH C6-C10	0.01	mg/L	< 0.01	0.37	< 0.01	0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	< 0.01	0.36	< 0.01	0.02
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0015574	B22-De0015575	B22-De0015576	B22-De0015577
Date Sampled			Dec 07, 2022	Dec 07, 2022	Dec 07, 2022	Dec 07, 2022
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	80	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	< 0.05	3.7	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	3.9	0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	0.3	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	7.9	0.1	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	5.4	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	59	-	-	-
Chloride	1	mg/L	410	1100	1300	1100
Dissolved Organic Carbon	5	mg/L	20	1800	870	820
Nitrate & Nitrite (as N)	0.05	mg/L	0.87	-	-	-
Phosphate total (as P)	0.01	mg/L	0.39	-	-	-
Sulphate (as SO4)	5	mg/L	1100	750	490	520
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	2.0	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	2.87	-	-	-
Total Organic Carbon	5	mg/L	17	1800	890	940
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	700	280	14	16
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	31	1200	3700	2200
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	31	1200	3700	2200
Heavy Metals						
Arsenic	0.001	mg/L	0.007	0.039	0.023	0.023
Cadmium	0.0002	mg/L	0.016	0.0052	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.14	0.11	0.047	0.051
Copper	0.001	mg/L	0.23	0.045	< 0.001	< 0.001
Lead	0.001	mg/L	1.5	0.77	0.004	0.004
Nickel	0.001	mg/L	0.16	0.32	0.16	0.16
Zinc	0.005	mg/L	2.8	1.4	0.10	0.11
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	31	5.9	< 1	< 1
Magnesium	0.5	mg/L	4.6	2.7	1.2	1.8
Potassium	0.5	mg/L	47	94	15	15
Sodium	0.5	mg/L	180	1700	2500	2600
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.020	< 0.005	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.005	< 0.001	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.008	0.028	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.004	< 0.001	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.005	^{N09} 0.014	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	0.003	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-

Client Sample ID			SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0015574	B22-De0015575	B22-De0015576	B22-De0015577
Date Sampled			Dec 07, 2022	Dec 07, 2022	Dec 07, 2022	Dec 07, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
13C4-PFBA (surr.)	1	%	90	77	-	-
13C5-PFPeA (surr.)	1	%	67	84	-	-
13C5-PFHxA (surr.)	1	%	64	71	-	-
13C4-PFHpA (surr.)	1	%	53	77	-	-
13C8-PFOA (surr.)	1	%	60	83	-	-
13C5-PFNA (surr.)	1	%	61	93	-	-
13C6-PFDA (surr.)	1	%	70	83	-	-
13C2-PFUnDA (surr.)	1	%	84	96	-	-
13C2-PFDoDA (surr.)	1	%	53	80	-	-
13C2-PFTeDA (surr.)	1	%	51	52	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
13C8-FOSA (surr.)	1	%	53	24	-	-
D3-N-MeFOSA (surr.)	1	%	47	21	-	-
D5-N-EtFOSA (surr.)	1	%	42	19	-	-
D7-N-MeFOSE (surr.)	1	%	15	INT	-	-
D9-N-EtFOSE (surr.)	1	%	19	INT	-	-
D5-N-EtFOSAA (surr.)	1	%	51	51	-	-
D3-N-MeFOSAA (surr.)	1	%	52	68	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.008	< 0.001	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.012	^{N09} 0.19	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	0.009	^{N09} 0.033	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.055	^{N09} 0.24	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	0.003	-	-
13C3-PFBS (surr.)	1	%	81	107	-	-
18O2-PFHxS (surr.)	1	%	73	62	-	-
13C8-PFOS (surr.)	1	%	89	97	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTA) ^{N11}	0.005	ug/L	0.53	0.28	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTA) ^{N11}	0.001	ug/L	0.009	0.021	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-

Client Sample ID			SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0015574	B22-De0015575	B22-De0015576	B22-De0015577
Date Sampled			Dec 07, 2022	Dec 07, 2022	Dec 07, 2022	Dec 07, 2022
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
13C2-4:2 FTSA (surr.)	1	%	82	34	-	-
13C2-6:2 FTSA (surr.)	1	%	107	136	-	-
13C2-8:2 FTSA (surr.)	1	%	Q0923	70	-	-
13C2-10:2 FTSA (surr.)	1	%	83	192	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.067	0.43	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.06	0.254	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.072	0.444	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.656	0.773	-	-
Sum of PFASs (n=30)*	0.005	ug/L	0.665	0.812	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	< 0.005	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	< 0.005	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
13C8-FOSA (surr.)	1	%	-	-	73	-
D3-N-MeFOSA (surr.)	1	%	-	-	61	-
D5-N-EtFOSA (surr.)	1	%	-	-	47	-
D7-N-MeFOSE (surr.)	1	%	-	-	26	-
D9-N-EtFOSE (surr.)	1	%	-	-	22	-
D5-N-EtFOSAA (surr.)	1	%	-	-	41	-
D3-N-MeFOSAA (surr.)	1	%	-	-	56	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	70	-
13C5-PFPeA (surr.)	1	%	-	-	60	-

Client Sample ID			SJO6_UW003	SJO6_PW003	SJO6_TW003	SJO6_DW003
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0015574	B22-De0015575	B22-De0015576	B22-De0015577
Date Sampled			Dec 07, 2022	Dec 07, 2022	Dec 07, 2022	Dec 07, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
13C5-PFHxA (surr.)	1	%	-	-	73	-
13C4-PFHpA (surr.)	1	%	-	-	81	-
13C8-PFOA (surr.)	1	%	-	-	76	-
13C5-PFNA (surr.)	1	%	-	-	67	-
13C6-PFDA (surr.)	1	%	-	-	79	-
13C2-PFUnDA (surr.)	1	%	-	-	70	-
13C2-PFDoDA (surr.)	1	%	-	-	50	-
13C2-PFTeDA (surr.)	1	%	-	-	35	-
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	87	-
18O2-PFHxS (surr.)	1	%	-	-	88	-
13C8-PFOS (surr.)	1	%	-	-	92	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	41	-
13C2-6:2 FTSA (surr.)	1	%	-	-	68	-
13C2-8:2 FTSA (surr.)	1	%	-	-	29	-
13C2-10:2 FTSA (surr.)	1	%	-	-	72	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Dec 09, 2022	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Dec 08, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Dec 08, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Dec 09, 2022	7 Days
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Dec 09, 2022	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: APHA 5210B	Brisbane	Dec 14, 2022	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Dec 09, 2022	28 Days
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Dec 09, 2022	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Dec 09, 2022	28 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Dec 08, 2022	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Dec 08, 2022	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Dec 09, 2022	180 Days
Eurofins Suite B11E: Cl/SO4/Alkalinity Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Dec 09, 2022	28 Days
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Dec 09, 2022	28 Days
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Melbourne	Dec 09, 2022	14 Days
Total Nitrogen Set (as N) Nitrate & Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Dec 09, 2022	28 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Dec 09, 2022	28 Days
Eurofins Suite B19A: Total N (TKN, NOx), Total P Phosphate total (as P) - Method: LTM-INO-4040 Phosphate by CFA	Melbourne	Dec 09, 2022	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 08, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 08, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 08, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 08, 2022	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) - Trace Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 08, 2022	28 Days

Description	Testing Site	Extracted	Holding Time
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 08, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 08, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 08, 2022	28 Days

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 948107
Phone: 1300 727 527
Fax:

Received: Dec 7, 2022 2:22 PM
Due: Dec 12, 2022
Priority: 3 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X		X	X	X	X	X		X	
Brisbane Laboratory - NATA # 1261 Site # 20794						X				X		X	X			X		X
External Laboratory																		
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID													
1	SJO6_UW003	Dec 07, 2022		Water	B22-De0015574	X	X	X	X	X	X	X	X	X	X	X	X	
2	SJO6_PW003	Dec 07, 2022		Water	B22-De0015575			X	X	X		X	X		X	X	X	
3	SJO6_TW003	Dec 07, 2022		Water	B22-De0015576			X	X	X		X	X		X		X	X
4	SJO6_DW003	Dec 07, 2022		Water	B22-De0015577			X	X	X		X	X		X		X	
Test Counts						1	1	4	4	4	1	4	4	1	4	2	4	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	0.01			0.01	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	96			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	89			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	91			70-130	Pass	
Xylenes - Total*	%	91			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	100			70-130	Pass	
Chloride	%	117			70-130	Pass	
Nitrate & Nitrite (as N)	%	113			70-130	Pass	
Phosphate total (as P)	%	100			70-130	Pass	
Sulphate (as SO ₄)	%	109			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	120			70-130	Pass	
Total Organic Carbon	%	104			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	100			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	98			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Cadmium	%	99			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	97			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	96			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	87			80-120	Pass	
Magnesium	%	91			80-120	Pass	
Potassium	%	86			80-120	Pass	
Sodium	%	82			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	102			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	89			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	89			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	88			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	103			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	99			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	115			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	80			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	94			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	78			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	103			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	104			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	108			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	126			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	82			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	104			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	84			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	102			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	108			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	70			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	138			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)	%	115			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	80			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	94			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	78			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	103			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	104			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	108			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	126			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	102			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	89			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	89			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	88			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	103			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	112			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	115			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	82			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	104			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	84			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	102			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	108			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	70			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	138			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	94			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	115			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B22-De0016068	NCP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B22-De0016068	NCP	%	91			70-130	Pass	
Toluene	B22-De0016068	NCP	%	91			70-130	Pass	
Ethylbenzene	B22-De0016068	NCP	%	93			70-130	Pass	
m&p-Xylenes	B22-De0016068	NCP	%	92			70-130	Pass	
o-Xylene	B22-De0016068	NCP	%	92			70-130	Pass	
Xylenes - Total*	B22-De0016068	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B22-De0016068	NCP	%	103			70-130	Pass	
Spike - % Recovery									
				Result 1					
Nitrate & Nitrite (as N)	N22-De0004171	NCP	%	103			70-130	Pass	
Sulphate (as SO ₄)	M22-De0020100	NCP	%	85			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	B22-De0011742	NCP	%	101			70-130	Pass	
Total Organic Carbon	B22-De0011743	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B22-De0016070	NCP	%	96			75-125	Pass	
Cadmium	B22-De0016070	NCP	%	96			75-125	Pass	
Chromium	B22-De0016070	NCP	%	101			75-125	Pass	
Copper	B22-De0016070	NCP	%	101			75-125	Pass	
Lead	B22-De0016070	NCP	%	99			75-125	Pass	
Nickel	B22-De0016070	NCP	%	100			75-125	Pass	
Zinc	B22-De0016070	NCP	%	98			75-125	Pass	
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	R22-De0013348	NCP	%	79			75-125	Pass	
Magnesium	M22-De0020520	NCP	%	84			75-125	Pass	
Potassium	M22-De0020520	NCP	%	81			75-125	Pass	
Sodium	R22-De0013348	NCP	%	83			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B22-De0015575	CP	%	119			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-De0015575	CP	%	149			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-De0015575	CP	%	116			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-De0015575	CP	%	78			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-De0015575	CP	%	79			50-150	Pass	N09
Perfluorononanoic acid (PFNA)	B22-De0015575	CP	%	88			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B22-De0015575	CP	%	112			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-De0015575	CP	%	102			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B22-De0015575	CP	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B22-De0015575	CP	%	76			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-De0015575	CP	%	97			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-De0015575	CP	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0015575	CP	%	86			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0015575	CP	%	73			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0015575	CP	%	80			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0015575	CP	%	94			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0015575	CP	%	111			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0015575	CP	%	128			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-De0015575	CP	%	135			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-De0015575	CP	%	101			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-De0015575	CP	%	119			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-De0015575	CP	%	98			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-De0015575	CP	%	119			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0015575	CP	%	114			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-De0015575	CP	%	79			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-De0015575	CP	%	53			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-De0015575	CP	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-De0015575	CP	%	108			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0015575	CP	%	83			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0015575	CP	%	81			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B22-De0015576	CP	%	103			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B22-De0015576	CP	%	98			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B22-De0011749	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate								
BTX				Result 1	Result 2	RPD		
Benzene	B22-De0011749	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	B22-De0011749	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	B22-De0011749	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	B22-De0011749	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	B22-De0011749	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	B22-De0011749	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	B22-De0011749	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	B22-De0011749	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Chlorinated Hydrocarbons				Result 1	Result 2	RPD		
1,2-Dichlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzal chloride	M22-De0019194	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Benzotrichloride	M22-De0019194	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Benzyl chloride	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachlorobenzene	M22-De0019194	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Biochemical Oxygen Demand (BOD-5 Day)	B22-De0018993	NCP	mg/L	8.2	6.6	22	30%	Pass
Chloride	M22-De0020514	NCP	mg/L	630	610	4.3	30%	Pass
Nitrate & Nitrite (as N)	M22-De0021802	NCP	mg/L	9.9	9.9	<1	30%	Pass
Phosphate total (as P)	B22-De0007430	NCP	mg/L	0.03	0.03	2.4	30%	Pass
Sulphate (as SO4)	M22-De0020163	NCP	mg/L	530	530	<1	30%	Pass
Total Kjeldahl Nitrogen (as N)	M22-De0021802	NCP	mg/L	220	240	7.0	30%	Pass
Total Organic Carbon	X22-De0005185	NCP	mg/L	< 5	< 5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B22-De0009504	NCP	mg/L	0.007	0.007	1.7	30%	Pass
Cadmium	B22-De0009504	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	B22-De0009504	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper	B22-De0009504	NCP	mg/L	0.004	0.004	6.3	30%	Pass
Lead	B22-De0007263	NCP	mg/L	0.002	0.003	4.2	30%	Pass
Nickel	B22-De0007263	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc	B22-De0009504	NCP	mg/L	0.012	0.010	13	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	M22-De0019967	NCP	mg/L	17	18	9.1	30%	Pass
Magnesium	M22-De0019967	NCP	mg/L	29	35	8.1	30%	Pass
Potassium	M22-De0019967	NCP	mg/L	3.3	3.4	8.6	30%	Pass
Sodium	M22-De0019967	NCP	mg/L	160	180	7.2	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B22-De0015574	CP	ug/L	0.020	0.017	15	30%	Pass
Perfluoropentanoic acid (PFPeA)	B22-De0015574	CP	ug/L	0.005	0.005	4.7	30%	Pass
Perfluorohexanoic acid (PFHxA)	B22-De0015574	CP	ug/L	0.008	0.008	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B22-De0015574	CP	ug/L	0.004	0.004	10	30%	Pass
Perfluorooctanoic acid (PFOA)	B22-De0015574	CP	ug/L	0.005	0.006	4.6	30%	Pass
Perfluorononanoic acid (PFNA)	B22-De0015574	CP	ug/L	< 0.001	0.001	8.6	30%	Pass
Perfluorodecanoic acid (PFDA)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0015574	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-De0015574	CP	ug/L	0.008	0.008	3.1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-De0015574	CP	ug/L	0.012	0.011	9.4	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0015574	CP	ug/L	0.009	0.008	13	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-De0015574	CP	ug/L	0.055	0.055	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<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)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-De0015574	CP	ug/L	0.53	0.53	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0015574	CP	ug/L	0.009	0.014	5.6	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0015574	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	B22-De0015575	CP	mg/L	4.2	4.0	4.7	30%	Pass
TRH C15-C28	B22-De0015575	CP	mg/L	4.6	4.3	5.2	30%	Pass
TRH C29-C36	B22-De0015575	CP	mg/L	0.4	0.5	5.4	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B22-De0015575	CP	mg/L	3.7	3.5	5.4	30%	Pass
TRH >C16-C34	B22-De0015575	CP	mg/L	3.9	3.7	4.4	30%	Pass
TRH >C34-C40	B22-De0015575	CP	mg/L	0.3	0.3	14	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Suspended Solids Dried at 103 °C to 105 °C	B22-De0015575	CP	mg/L	280	220	26	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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Zoe Flynn	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Emily Rosenberg	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic
Scott Beddoes	Senior Analyst-Inorganic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **948110-W-V2**

Project name **SJO6**

Project ID **SJO6**

Received Date **Dec 07, 2022**

Client Sample ID			SJO6_DW003
Sample Matrix			Water
Eurofins Sample No.			B22-De0015578
Date Sampled			Dec 07, 2022
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	111
D3-N-MeFOSA (surr.)	1	%	60
D5-N-EtFOSA (surr.)	1	%	117
D7-N-MeFOSE (surr.)	1	%	124
D9-N-EtFOSE (surr.)	1	%	130
D5-N-EtFOSAA (surr.)	1	%	88
D3-N-MeFOSAA (surr.)	1	%	96
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW003
Sample Matrix			Water
Eurofins Sample No.			B22-De0015578
Date Sampled			Dec 07, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	119
13C5-PFPeA (surr.)	1	%	87
13C5-PFHxA (surr.)	1	%	77
13C4-PFHpA (surr.)	1	%	103
13C8-PFOA (surr.)	1	%	137
13C5-PFNA (surr.)	1	%	127
13C6-PFDA (surr.)	1	%	103
13C2-PFUnDA (surr.)	1	%	109
13C2-PFDoDA (surr.)	1	%	78
13C2-PFTeDA (surr.)	1	%	69
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	129
18O2-PFHxS (surr.)	1	%	125
13C8-PFOS (surr.)	1	%	117
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	104
13C2-6:2 FTSA (surr.)	1	%	51
13C2-8:2 FTSA (surr.)	1	%	48
13C2-10:2 FTSA (surr.)	1	%	103

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Dec 08, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Dec 08, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)s- Trace	Brisbane	Dec 08, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Dec 13, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 948110
Phone: 1300 727 527
Fax:

Received: Dec 7, 2022 2:22 PM
Due: Dec 8, 2022
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW003	Dec 07, 2022		Water	B22-De0015578	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	80			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	94			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	78			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	103			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	104			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	108			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	126			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	102			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	89			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	89			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	88			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	103			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	112			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	115			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	82			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	104			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	84			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	102			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	108			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	70			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	108			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	138			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)			%	115			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-De0031551	NCP	%	105			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0031551	NCP	%	73			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0031551	NCP	%	95			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0031551	NCP	%	85			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0031551	NCP	%	113			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0031551	NCP	%	115			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0031551	NCP	%	104			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)s - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B22-De0031551	NCP	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-De0031551	NCP	%	108			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-De0031551	NCP	%	113			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-De0031551	NCP	%	80			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-De0031551	NCP	%	98			50-150	Pass	
Perfluorononanoic acid (PFNA)	B22-De0031551	NCP	%	110			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B22-De0031551	NCP	%	125			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B22-De0031551	NCP	%	86			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-De0031551	NCP	%	104			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B22-De0031551	NCP	%	100			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-De0031551	NCP	%	125			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-De0031551	NCP	%	111			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-De0031551	NCP	%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-De0031551	NCP	%	124			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-De0031551	NCP	%	77			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-De0031551	NCP	%	104			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0031551	NCP	%	123			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-De0031551	NCP	%	117			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-De0031551	NCP	%	89			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-De0031551	NCP	%	113			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B22-De0031551	NCP	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0031551	NCP	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0031551	NCP	%	123			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-De0031550	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0031550	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Comments

This report has been revised (V2) following repeat analysis. Test PFAS results for sample De0015578 have now been replaced by the repeat results.

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	N/A
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:

Zoe Flynn
Jonathon Angell

Analytical Services Manager
Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: Data

Report 950742-W-V2

Project name SJO6

Project ID SJO6

Received Date Dec 15, 2022

Client Sample ID			SJO6_DW004
Sample Matrix			Water
Eurofins Sample No.			B22-De0036339
Date Sampled			Dec 15, 2022
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	0.018
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.018
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	73
D3-N-MeFOSA (surr.)	1	%	61
D5-N-EtFOSA (surr.)	1	%	61
D7-N-MeFOSE (surr.)	1	%	40
D9-N-EtFOSE (surr.)	1	%	41
D5-N-EtFOSAA (surr.)	1	%	27
D3-N-MeFOSAA (surr.)	1	%	36
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.018
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW004
Sample Matrix			Water
Eurofins Sample No.			B22-De0036339
Date Sampled			Dec 15, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	63
13C5-PFPeA (surr.)	1	%	113
13C5-PFHxA (surr.)	1	%	112
13C4-PFHpA (surr.)	1	%	125
13C8-PFOA (surr.)	1	%	122
13C5-PFNA (surr.)	1	%	113
13C6-PFDA (surr.)	1	%	98
13C2-PFUnDA (surr.)	1	%	79
13C2-PFDoDA (surr.)	1	%	69
13C2-PFTeDA (surr.)	1	%	71
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	106
18O2-PFHxS (surr.)	1	%	106
13C8-PFOS (surr.)	1	%	106
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	25
13C2-6:2 FTSA (surr.)	1	%	71
13C2-8:2 FTSA (surr.)	1	%	39
13C2-10:2 FTSA (surr.)	1	%	27

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Repeat Samples

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Dec 22, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 950742
Phone: 1300 727 527
Fax:

Received: Dec 15, 2022 3:00 PM
Due: Dec 16, 2022
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW004	Dec 15, 2022		Water	B22-De0036339	X
Test Counts						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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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	Lab Sample ID	Units	Result	Repeat				Qualifying Code
Repeat Analysis								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace								
Perfluorobutanoic acid (PFBA)	B22-De0036339	ug/L	0.018	0.017				
Perfluoropentanoic acid (PFPeA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorohexanoic acid (PFHxA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluoroheptanoic acid (PFHpA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorooctanoic acid (PFOA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorononanoic acid (PFNA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorodecanoic acid (PFDA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorotridecanoic acid (PFTrDA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluoroundecanoic acid (PFUnDA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorododecanoic acid (PFDoDA)	B22-De0036339	ug/L	< 0.001	< 0.001				
Perfluorotetradecanoic acid (PFTeDA)	B22-De0036339	ug/L	< 0.001	< 0.001				
13C4-PFBA (surr.)	B22-De0036339	%	63	59				
13C5-PFPeA (surr.)	B22-De0036339	%	113	103				
13C5-PFHxA (surr.)	B22-De0036339	%	112	99				
13C4-PFHpA (surr.)	B22-De0036339	%	125	90				
13C8-PFOA (surr.)	B22-De0036339	%	122	101				
13C5-PFNA (surr.)	B22-De0036339	%	113	99				
13C6-PFDA (surr.)	B22-De0036339	%	98	96				
13C2-PFUnDA (surr.)	B22-De0036339	%	79	65				
13C2-PFDoDA (surr.)	B22-De0036339	%	69	48				
13C2-PFTeDA (surr.)	B22-De0036339	%	71	59				
Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank								
Perfluoroalkyl sulfonamido substances- Trace								
Perfluorooctane sulfonamide (FOSA)		ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)		ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)		ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)		ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)		ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)		ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)		ug/L	< 0.002			0.002	Pass	
Method Blank								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace								
Perfluorobutanoic acid (PFBA)		ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)		ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)		ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)		ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)		ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)		ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)		ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)		ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)		ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)		ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)		ug/L	< 0.001			0.001	Pass	
Method Blank								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace								
Perfluorobutanesulfonic acid (PFBS)		ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)		ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)		ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	74			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	103			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	75			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	93			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	93			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	110			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	102			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	87			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	99			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	84			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	80			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	95			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	93			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	81			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	96			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	102			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	93			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	112			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	119			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	71			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	95			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	92			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	77			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	115			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	82			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	97			50-150	Pass	

Comments

This report has been revised (V2) following repeat analysis. Test PFAS results for sample De0036339 have been confirmed. Repeat data is available at the start of the QC section.

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:

Zoe Flynn
Jonathon Angell

Analytical Services Manager
Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: Data

Report 950743-W
Project name SJO6
Project ID SJO6
Received Date Dec 15, 2022

Client Sample ID			SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0036375	B22-De0036376	B22-De0036377	B22-De0036378
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	0.07	0.41	0.04	0.04
TRH C10-C14	0.05	mg/L	0.18	6.1	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.3	6.4	0.3	0.1
TRH C29-C36	0.1	mg/L	< 0.1	2.0	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.48	14.5	0.3	0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.01	< 0.001	< 0.001
Toluene	0.001	mg/L	0.007	< 0.01	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.01	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.005	< 0.02	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.004	< 0.01	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.009	< 0.03	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	110	112	114	113
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.28	5.7	0.06	< 0.05
TRH C6-C10	0.01	mg/L	0.09	0.58	0.05	0.04
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	0.07	0.58	0.05	0.04
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0036375	B22-De0036376	B22-De0036377	B22-De0036378
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	63	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.28	5.7	0.06	< 0.05
TRH >C16-C34	0.1	mg/L	0.2	7.2	0.3	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	1.5	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.48	14.4	0.36	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	1200	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	340	-	-	-
Chloride	1	mg/L	2600	180	170	170
Dissolved Organic Carbon	5	mg/L	57	340	180	140
Nitrate & Nitrite (as N)	0.05	mg/L	0.13	-	-	-
Phosphate total (as P)	0.01	mg/L	0.69	-	-	-
Sulphate (as SO4)	5	mg/L	500	450	410	500
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	2.3	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	2.43	-	-	-
Total Organic Carbon	5	mg/L	57	340	190	140
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	680	120	< 5	20
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	44	< 20	290	280
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	44	< 20	290	280
Heavy Metals						
Arsenic	0.001	mg/L	0.034	0.021	0.007	0.003
Cadmium	0.0002	mg/L	0.0025	0.0041	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.11	0.036	0.067	0.060
Copper	0.001	mg/L	0.32	0.41	< 0.001	< 0.001
Lead	0.001	mg/L	15	2.2	< 0.001	0.003
Nickel	0.001	mg/L	0.066	0.094	0.61	0.50
Zinc	0.005	mg/L	11	0.71	< 0.005	0.012
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	160	37	4.0	3.3
Magnesium	0.5	mg/L	38	5.3	2.0	1.4
Potassium	0.5	mg/L	56	29	5.8	5.3
Sodium	0.5	mg/L	570	240	520	470
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.018	0.005	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.017	0.004	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.025	0.005	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.015	0.002	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	^{N09} 0.034	0.005	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.005	< 0.001	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-

Client Sample ID			SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0036375	B22-De0036376	B22-De0036377	B22-De0036378
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
13C4-PFBA (surr.)	1	%	48	68	-	-
13C5-PFPeA (surr.)	1	%	58	54	-	-
13C5-PFHxA (surr.)	1	%	60	63	-	-
13C4-PFHpA (surr.)	1	%	72	62	-	-
13C8-PFOA (surr.)	1	%	68	52	-	-
13C5-PFNA (surr.)	1	%	90	57	-	-
13C6-PFDA (surr.)	1	%	83	52	-	-
13C2-PFUnDA (surr.)	1	%	119	51	-	-
13C2-PFDoDA (surr.)	1	%	142	68	-	-
13C2-PFTeDA (surr.)	1	%	145	106	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	0.002	< 0.002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
13C8-FOSA (surr.)	1	%	99	57	-	-
D3-N-MeFOSA (surr.)	1	%	83	69	-	-
D5-N-EtFOSA (surr.)	1	%	120	95	-	-
D7-N-MeFOSE (surr.)	1	%	133	79	-	-
D9-N-EtFOSE (surr.)	1	%	116	75	-	-
D5-N-EtFOSAA (surr.)	1	%	179	142	-	-
D3-N-MeFOSAA (surr.)	1	%	105	65	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.023	0.010	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	0.005	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.043	^{N09} 0.020	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	^{N09} < 0.001	0.001	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.29	^{N09} 0.14	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
13C3-PFBS (surr.)	1	%	67	79	-	-
18O2-PFHxS (surr.)	1	%	80	69	-	-
13C8-PFOS (surr.)	1	%	115	61	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTA) ^{N11}	0.005	ug/L	1.5	0.68	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTA) ^{N11}	0.001	ug/L	0.012	0.006	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTA) ^{N11}	0.001	ug/L	0.001	< 0.001	-	-

Client Sample ID			SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0036375	B22-De0036376	B22-De0036377	B22-De0036378
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
13C2-4:2 FTSA (surr.)	1	%	44	106	-	-
13C2-6:2 FTSA (surr.)	1	%	45	108	-	-
13C2-8:2 FTSA (surr.)	1	%	91	63	-	-
13C2-10:2 FTSA (surr.)	1	%	27	122	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.333	0.16	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.324	0.145	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.367	0.165	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	1.977	0.877	-	-
Sum of PFASs (n=30)*	0.005	ug/L	1.985	0.883	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.013	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.013	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
13C8-FOSA (surr.)	1	%	-	-	78	-
D3-N-MeFOSA (surr.)	1	%	-	-	67	-
D5-N-EtFOSA (surr.)	1	%	-	-	76	-
D7-N-MeFOSE (surr.)	1	%	-	-	64	-
D9-N-EtFOSE (surr.)	1	%	-	-	60	-
D5-N-EtFOSAA (surr.)	1	%	-	-	124	-
D3-N-MeFOSAA (surr.)	1	%	-	-	94	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.013	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	109	-
13C5-PFPeA (surr.)	1	%	-	-	101	-

Client Sample ID			SJO6_UW004	SJO6_PW004	SJO6_TW004	SJO6_DW004
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B22-De0036375	B22-De0036376	B22-De0036377	B22-De0036378
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
13C5-PFHxA (surr.)	1	%	-	-	111	-
13C4-PFHpA (surr.)	1	%	-	-	108	-
13C8-PFOA (surr.)	1	%	-	-	125	-
13C5-PFNA (surr.)	1	%	-	-	113	-
13C6-PFDA (surr.)	1	%	-	-	99	-
13C2-PFUnDA (surr.)	1	%	-	-	103	-
13C2-PFDoDA (surr.)	1	%	-	-	72	-
13C2-PFTeDA (surr.)	1	%	-	-	64	-
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	125	-
18O2-PFHxS (surr.)	1	%	-	-	132	-
13C8-PFOS (surr.)	1	%	-	-	100	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	136	-
13C2-6:2 FTSA (surr.)	1	%	-	-	108	-
13C2-8:2 FTSA (surr.)	1	%	-	-	99	-
13C2-10:2 FTSA (surr.)	1	%	-	-	129	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Dec 16, 2022	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Dec 16, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Dec 16, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Dec 16, 2022	7 Days
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Dec 16, 2022	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: APHA 5210B	Brisbane	Dec 22, 2022	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Dec 16, 2022	28 Days
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Dec 16, 2022	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Dec 16, 2022	28 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Dec 19, 2022	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Dec 16, 2022	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Dec 16, 2022	180 Days
Eurofins Suite B11E: Cl/SO4/Alkalinity Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Brisbane	Dec 16, 2022	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Brisbane	Dec 21, 2022	28 Day
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Melbourne	Dec 16, 2022	14 Days
Total Nitrogen Set (as N) Nitrate & Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Dec 16, 2022	28 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Dec 16, 2022	28 Days
Eurofins Suite B19A: Total N (TKN, NOx), Total P Phosphate total (as P) - Method: LTM-INO-4040 Phosphate by CFA	Melbourne	Dec 16, 2022	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 16, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 16, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 16, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 16, 2022	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) - Trace Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 16, 2022	28 Days

Description	Testing Site	Extracted	Holding Time
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 16, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 16, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Dec 16, 2022	28 Days

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575
Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 950743
Phone: 1300 727 527
Fax:

Received: Dec 15, 2022 3:00 PM
Due: Dec 20, 2022
Priority: 3 Day
Contact Name: Data

Eurofins Analytical Services Manager : Peter Brand

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X		X	X	X	X	X		X	
Brisbane Laboratory - NATA # 1261 Site # 20794						X				X		X	X		X	X		X
External Laboratory																		
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID													
1	SJO6_UW004	Dec 15, 2022		Water	B22-De0036375	X	X	X	X	X	X	X	X	X	X	X	X	
2	SJO6_PW004	Dec 15, 2022		Water	B22-De0036376			X	X	X		X	X		X	X	X	
3	SJO6_TW004	Dec 15, 2022		Water	B22-De0036377			X	X	X		X	X		X		X	X
4	SJO6_DW004	Dec 15, 2022		Water	B22-De0036378			X	X	X		X	X		X		X	
Test Counts						1	1	4	4	4	1	4	4	1	4	2	4	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.01			0.01	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	125			70-130	Pass	
TRH C10-C14	%	127			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	82			70-130	Pass	
Toluene	%	89			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	109			70-130	Pass	
Xylenes - Total*	%	108			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	129			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	122			70-130	Pass	
LCS - % Recovery							
Chloride	%	112			70-130	Pass	
Nitrate & Nitrite (as N)	%	101			70-130	Pass	
Phosphate total (as P)	%	103			70-130	Pass	
Sulphate (as SO4)	%	88			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	101			70-130	Pass	
Total Organic Carbon	%	108			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	101			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	105			70-130	Pass	
Total Alkalinity (as CaCO3)	%	114			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	107			80-120	Pass	
Lead	%	106			80-120	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	102			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	88			80-120	Pass	
Magnesium	%	86			80-120	Pass	
Potassium	%	96			80-120	Pass	
Sodium	%	86			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	86			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	85			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	82			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	82			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	86			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	82			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	94			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	97			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	85			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	100			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	89			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	82			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	80			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	80			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	89			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorononanesulfonic acid (PFNS)	%	77			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	77			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	86			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	87			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	68			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	100			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	89			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	82			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	80			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	80			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	85			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	82			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	82			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	86			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	82			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	94			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	85			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	89			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	77			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	77			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	86			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	87			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	68			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	87			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	B22-De0036112	NCP	%	113		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	B22-De0036112	NCP	%	74		70-130	Pass	
Toluene	B22-De0036112	NCP	%	78		70-130	Pass	
Ethylbenzene	B22-De0036112	NCP	%	83		70-130	Pass	
m&p-Xylenes	B22-De0036112	NCP	%	94		70-130	Pass	
o-Xylene	B22-De0036112	NCP	%	90		70-130	Pass	
Xylenes - Total*	B22-De0036112	NCP	%	93		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH C6-C10	B22-De0036112	NCP	%	111		70-130	Pass	
Spike - % Recovery								
Chlorinated Hydrocarbons				Result 1				
Hexachlorobenzene	M22-De0034901	NCP	%	76		70-130	Pass	
Spike - % Recovery								
				Result 1				
Chloride	B22-De0036375	CP	%	77		70-130	Pass	
Nitrate & Nitrite (as N)	M22-De0036379	NCP	%	93		70-130	Pass	
Sulphate (as SO4)	B22-De0036375	CP	%	75		70-130	Pass	
Total Kjeldahl Nitrogen (as N)	B22-De0036375	CP	%	104		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	B22-De0027594	NCP	%	116		75-125	Pass	
Cadmium	B22-De0027594	NCP	%	112		75-125	Pass	
Chromium	B22-De0027594	NCP	%	113		75-125	Pass	
Copper	B22-De0027594	NCP	%	113		75-125	Pass	
Lead	B22-De0027584	NCP	%	123		75-125	Pass	
Nickel	B22-De0027594	NCP	%	111		75-125	Pass	
Zinc	B22-De0027584	NCP	%	117		75-125	Pass	
Spike - % Recovery								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1				
Sodium	M22-De0037698	NCP	%	81		75-125	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C10-C14	B22-De0031289	NCP	%	97		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	B22-De0031289	NCP	%	93		70-130	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	B22-De0036376	CP	%	97		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-De0036376	CP	%	84		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-De0036376	CP	%	93		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-De0036376	CP	%	85		50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-De0036376	CP	%	92		50-150	Pass	
Perfluorononanoic acid (PFNA)	B22-De0036376	CP	%	88		50-150	Pass	
Perfluorodecanoic acid (PFDA)	B22-De0036376	CP	%	105		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-De0036376	CP	%	96		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B22-De0036376	CP	%	97		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorotridecanoic acid (PFTrDA)	B22-De0036376	CP	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-De0036376	CP	%	83			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-De0036376	CP	%	101			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0036376	CP	%	96			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0036376	CP	%	94			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0036376	CP	%	88			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0036376	CP	%	94			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0036376	CP	%	71			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0036376	CP	%	97			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-De0036376	CP	%	78			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-De0036376	CP	%	138			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-De0036376	CP	%	72			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-De0036376	CP	%	103			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-De0036376	CP	%	80			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0036376	CP	%	63			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-De0036376	CP	%	112			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-De0036376	CP	%	94			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-De0036376	CP	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-De0036376	CP	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0036376	CP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0036376	CP	%	86			50-150	Pass	
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	B22-De0036377	CP	%	93			75-125	Pass	
Magnesium	B22-De0036377	CP	%	90			75-125	Pass	
Potassium	B22-De0036377	CP	%	99			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B22-De0038770	NCP	%	92			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0038770	NCP	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0038770	NCP	%	88			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0038770	NCP	%	84			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0038770	NCP	%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0038770	NCP	%	81			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0038770	NCP	%	86			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B22-De0038770	NCP	%	97			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B22-De0038770	NCP	%	83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B22-De0038770	NCP	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B22-De0038770	NCP	%	90			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B22-De0038770	NCP	%	84			50-150	Pass	
Perfluorononanoic acid (PFNA)	B22-De0038770	NCP	%	80			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B22-De0038770	NCP	%	89			50-150	Pass	
Perfluorotridecanoic acid (PFTDA)	B22-De0038770	NCP	%	95			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B22-De0038770	NCP	%	90			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B22-De0038770	NCP	%	81			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B22-De0038770	NCP	%	87			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B22-De0038770	NCP	%	87			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B22-De0038770	NCP	%	77			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B22-De0038770	NCP	%	78			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B22-De0038770	NCP	%	91			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B22-De0038770	NCP	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0038770	NCP	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B22-De0038770	NCP	%	78			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B22-De0038770	NCP	%	70			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-De0038770	NCP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-De0038770	NCP	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0038770	NCP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0038770	NCP	%	85			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B22-De0036111	NCP	mg/L	0.04	0.04	8.4	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B22-De0036111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B22-De0036111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B22-De0036111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B22-De0036111	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B22-De0036111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B22-De0036111	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B22-De0036111	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B22-De0036111	NCP	mg/L	0.05	0.04	21	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	S22-De0031363	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	S22-De0031363	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	S22-De0031363	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Biochemical Oxygen Demand (BOD-5 Day)	B22-De0055040	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Nitrate & Nitrite (as N)	M22-De0036337	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Phosphate total (as P)	R22-De0029075	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M22-De0042438	NCP	mg/L	60	62	3.3	30%	Pass	
Total Organic Carbon	M22-De0040395	NCP	mg/L	39	38	3.3	30%	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	B22-De0036375	CP	mg/L	680	690	2.7	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B22-De0027593	NCP	mg/L	0.005	0.005	3.1	30%	Pass	
Cadmium	B22-De0027593	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B22-De0027593	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	B22-De0027593	NCP	mg/L	0.067	0.068	1.7	30%	Pass	
Lead	B22-De0027583	NCP	mg/L	0.002	0.002	7.5	30%	Pass	
Nickel	B22-De0027593	NCP	mg/L	0.19	0.19	1.6	30%	Pass	
Zinc	B22-De0027583	NCP	mg/L	0.007	0.007	6.0	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B22-De0036375	CP	ug/L	0.018	0.017	7.0	30%	Pass
Perfluoropentanoic acid (PFPeA)	B22-De0036375	CP	ug/L	0.017	0.020	12	30%	Pass
Perfluorohexanoic acid (PFHxA)	B22-De0036375	CP	ug/L	0.025	0.026	1.1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B22-De0036375	CP	ug/L	0.015	0.014	6.8	30%	Pass
Perfluorooctanoic acid (PFOA)	B22-De0036375	CP	ug/L	0.034	0.032	7.5	30%	Pass
Perfluorononanoic acid (PFNA)	B22-De0036375	CP	ug/L	0.005	0.005	1.1	30%	Pass
Perfluorodecanoic acid (PFDA)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B22-De0036375	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0036375	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0036375	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0036375	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0036375	CP	ug/L	0.002	0.003	19	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0036375	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0036375	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-De0036375	CP	ug/L	0.023	0.025	6.8	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-De0036375	CP	ug/L	0.043	0.034	22	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-De0036375	CP	ug/L	0.29	0.27	8.3	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<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)	B22-De0036375	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B22-De0036375	CP	ug/L	1.5	1.5	2.0	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0036375	CP	ug/L	0.012	0.013	6.8	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0036375	CP	ug/L	0.001	0.001	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	B22-De0031287	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	B22-De0031287	NCP	mg/L	0.2	0.1	22	30%	Pass
TRH C29-C36	B22-De0031287	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B22-De0031287	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C34-C40	B22-De0031287	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Suspended Solids Dried at 103 °C to 105 °C	B22-De0036376	CP	mg/L	120	94	28	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B22-De0036377	CP	mg/L	4.0	4.3	7.9	30%	Pass
Magnesium	B22-De0036377	CP	mg/L	2.0	2.0	1.8	30%	Pass
Potassium	B22-De0036377	CP	mg/L	5.8	6.0	2.6	30%	Pass
Sodium	B22-De0036377	CP	mg/L	520	540	4.9	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B22-De0038767	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B22-De0038767	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B22-De0038767	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B22-De0038767	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B22-De0038767	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B22-De0038767	NCP	ug/L	0.033	0.034	2.0	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B22-De0038767	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B22-De0038769	NCP	ug/L	0.13	0.14	1.0	30%	Pass
Perfluoropentanoic acid (PFPeA)	B22-De0038769	NCP	ug/L	0.003	0.003	4.9	30%	Pass
Perfluorohexanoic acid (PFHxA)	B22-De0038769	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B22-De0038769	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B22-De0038769	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B22-De0038767	NCP	ug/L	0.007	0.007	2.3	30%	Pass
Perfluorodecanoic acid (PFDA)	B22-De0038767	NCP	ug/L	0.002	0.002	2.0	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B22-De0038769	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B22-De0038767	NCP	ug/L	0.002	0.002	1.6	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B22-De0038767	NCP	ug/L	0.007	0.007	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B22-De0038767	NCP	ug/L	0.005	0.004	3.5	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B22-De0038769	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B22-De0038769	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B22-De0038767	NCP	ug/L	0.010	0.011	13	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B22-De0038767	NCP	ug/L	< 0.001	< 0.001	<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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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:

Zoe Flynn	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Volatile
Caitlin Breeze	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Joseph Edouard	Senior Analyst-Organic
Scott Beddoes	Senior Analyst-Inorganic
Scott Beddoes	Senior Analyst-Metal



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **955229-W**

Project name **SJO6**

Project ID **SJO6**

Received Date **Jan 12, 2023**

Client Sample ID			SJO6_DW004R
Sample Matrix			Water
Eurofins Sample No.			B23-Ja0010656
Date Sampled			Jan 11, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	98
D3-N-MeFOSA (surr.)	1	%	60
D5-N-EtFOSA (surr.)	1	%	69
D7-N-MeFOSE (surr.)	1	%	59
D9-N-EtFOSE (surr.)	1	%	74
D5-N-EtFOSAA (surr.)	1	%	100
D3-N-MeFOSAA (surr.)	1	%	82
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW004R
Sample Matrix			Water
Eurofins Sample No.			B23-Ja0010656
Date Sampled			Jan 11, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
13C4-PFBA (surr.)	1	%	113
13C5-PFPeA (surr.)	1	%	66
13C5-PFHxA (surr.)	1	%	83
13C4-PFHpA (surr.)	1	%	73
13C8-PFOA (surr.)	1	%	60
13C5-PFNA (surr.)	1	%	58
13C6-PFDA (surr.)	1	%	117
13C2-PFUnDA (surr.)	1	%	80
13C2-PFDoDA (surr.)	1	%	76
13C2-PFTeDA (surr.)	1	%	70
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	117
18O2-PFHxS (surr.)	1	%	112
13C8-PFOS (surr.)	1	%	87
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	31
13C2-6:2 FTSA (surr.)	1	%	74
13C2-8:2 FTSA (surr.)	1	%	55
13C2-10:2 FTSA (surr.)	1	%	52

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Jan 13, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Jan 13, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Jan 13, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Jan 13, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Tel: +61 2 4968 8448
NATA# 1261 Site# 25079

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 955229
Phone: 1300 727 527
Fax:

Received: Jan 12, 2023 6:13 PM
Due: Jan 16, 2023
Priority: 1 Day
Contact Name: - ALL INVOICES & STATEMENTS

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

- Trace
Per- and Polyfluoroalkyl Substances (PFASs)

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW004 R	Jan 11, 2023		Water	B23-Ja0010656	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	87			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	79			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	90			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)	%	81			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	92			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	92			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	88			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	91			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	84			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	74			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	95			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	82			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	116			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	87			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	101			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	87			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	81			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	92			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	83			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	110			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	106			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	146			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	70			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	104			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	111			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	91			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	89			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorododecanoic acid (PFDoDA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Ja0009617	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Ja0009617	NCP	ug/L	< 0.001	< 0.001	<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	N/A
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:

Zoe Flynn Analytical Services Manager
 Jonathon Angell Senior Analyst-PFAS



Glenn Jackson
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.



CERTIFICATE OF ANALYSIS

Work Order	: EB2300914	Page	: 1 of 5
Client	: SARJARO PTY LIMITED	Laboratory	: Environmental Division Brisbane
Contact	: LEAH	Contact	: Customer Services EB
Address	: Level 8, 2 Corporate Court Bundall 4217	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: SJ06	Date Samples Received	: 13-Jan-2023 16:28
Order number	: ----	Date Analysis Commenced	: 19-Jan-2023
C-O-C number	: ----	Issue Date	: 18-Apr-2023 15:21
Sampler	: , LEAH		
Site	: ----		
Quote number	: EN/333		
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 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>
Keegan Mullane	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SJ06_QCT004	----	----	----	----
Sampling date / time				11-Jan-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2300914-001	-----	-----	-----	-----
				Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L	<0.0003	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.002	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SJ06_QCT004	----	----	----	----
Sampling date / time				11-Jan-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2300914-001	-----	-----	-----	-----
Result				----	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	----	----	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0003	µg/L	<0.0003	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0003	µg/L	<0.0003	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0003	µg/L	<0.0003	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0005	%	108	----	----	----	----
13C8-PFOA	----	0.0005	%	96.9	----	----	----	----



Surrogate Control Limits

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

Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Attention: Data

Report 961506-W-V2

Project name SJO6

Project ID SJO6

Received Date Feb 07, 2023

Client Sample ID			SJO6_DW005
Sample Matrix			Water
Eurofins Sample No.			B23-Fe0015028
Date Sampled			Feb 07, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	78
D3-N-MeFOSA (surr.)	1	%	21
D5-N-EtFOSA (surr.)	1	%	16
D7-N-MeFOSE (surr.)	1	%	47
D9-N-EtFOSE (surr.)	1	%	33
D5-N-EtFOSAA (surr.)	1	%	63
D3-N-MeFOSAA (surr.)	1	%	75
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW005
Sample Matrix			Water
Eurofins Sample No.			B23-Fe0015028
Date Sampled			Feb 07, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
13C4-PFBA (surr.)	1	%	99
13C5-PFPeA (surr.)	1	%	83
13C5-PFHxA (surr.)	1	%	114
13C4-PFHpA (surr.)	1	%	71
13C8-PFOA (surr.)	1	%	118
13C5-PFNA (surr.)	1	%	84
13C6-PFDA (surr.)	1	%	65
13C2-PFUnDA (surr.)	1	%	66
13C2-PFDoDA (surr.)	1	%	71
13C2-PFTeDA (surr.)	1	%	60
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	115
18O2-PFHxS (surr.)	1	%	105
13C8-PFOS (surr.)	1	%	88
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	60
13C2-6:2 FTSA (surr.)	1	%	49
13C2-8:2 FTSA (surr.)	1	%	45
13C2-10:2 FTSA (surr.)	1	%	38

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 961506
Phone: 1300 727 527
Fax:

Received: Feb 7, 2023 6:41 PM
Due: Feb 9, 2023
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW005	Feb 07, 2023		Water	B23-Fe0015028	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	88			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	112			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	104			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	91			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	89			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	94			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	90			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	91			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	79			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	84			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	88			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	66			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	92			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	100			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	91			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	76			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	98			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	52			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	82			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	87			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	64			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	111			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	79			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	82			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	84			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Fe0015028	CP	%	80			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Fe0015028	CP	%	91			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Fe0015028	CP	%	91			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Fe0015028	CP	%	109			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Fe0015028	CP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Fe0015028	CP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Fe0015028	CP	%	97			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)s - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Fe0015028	CP	%	81			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Fe0015028	CP	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Fe0015028	CP	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Fe0015028	CP	%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Fe0015028	CP	%	72			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Fe0015028	CP	%	77			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Fe0015028	CP	%	86			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Fe0015028	CP	%	75			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Fe0015028	CP	%	91			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-Fe0015028	CP	%	94			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Fe0015028	CP	%	96			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Fe0015028	CP	%	90			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Fe0015028	CP	%	77			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Fe0015028	CP	%	101			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Fe0015028	CP	%	52			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Fe0015028	CP	%	82			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Fe0015028	CP	%	94			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Fe0015028	CP	%	87			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Fe0015028	CP	%	62			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Fe0015028	CP	%	129			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Fe0015028	CP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Fe0015028	CP	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Fe0015028	CP	%	93			50-150	Pass	

Comments

This report has been revised (V2) to correct sample name SJO7_DW005 to SJO6_DW005

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
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:

Jonathon Angell Senior Analyst-PFAS

Glenn Jackson
General Manager

- 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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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Attention: **Data**

Report **961508-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **Feb 07, 2023**

Client Sample ID			SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0015039	B23-Fe0015040	B23-Fe0015041	B23-Fe0015042
Date Sampled			Feb 07, 2023	Feb 07, 2023	Feb 07, 2023	Feb 07, 2023
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.005	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.004	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.014	0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.007	0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.020	0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	132	113	102	103
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	1.7	0.78	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	0.18	0.07	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	0.15	0.07	< 0.02	< 0.02
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	0.13	0.05	< 0.02	< 0.02
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C10-C14	0.05	mg/L	2.0	0.99	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	3.2	1.2	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	0.4	0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	5.6	2.29	< 0.1	< 0.1
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0015039	B23-Fe0015040	B23-Fe0015041	B23-Fe0015042
Date Sampled			Feb 07, 2023	Feb 07, 2023	Feb 07, 2023	Feb 07, 2023
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	79	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	1.7	0.78	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	3.1	1.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	4.8	1.88	< 0.1	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	140	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	280	-	-	-
Chloride	1	mg/L	1200	-	-	-
Dissolved Organic Carbon	5	mg/L	160	-	-	-
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	-	-	-
Phosphate total (as P)	0.01	mg/L	0.11	-	-	-
Sulphate (as SO4)	5	mg/L	410	-	-	-
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	6.1	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	6.1	-	-	-
Total Organic Carbon	5	mg/L	170	-	-	-
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	9.9	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	540	-	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	-	-	-
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	-	-	-
Total Alkalinity (as CaCO3)	20	mg/L	540	-	-	-
Heavy Metals						
Arsenic	0.001	mg/L	0.038	-	-	-
Cadmium	0.0002	mg/L	< 0.0002	-	-	-
Chromium	0.001	mg/L	0.002	-	-	-
Copper	0.001	mg/L	< 0.001	-	-	-
Lead	0.001	mg/L	0.020	-	-	-
Nickel	0.001	mg/L	0.11	-	-	-
Zinc	0.005	mg/L	< 0.005	-	-	-
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	17	-	-	-
Magnesium	0.5	mg/L	26	-	-	-
Potassium	0.5	mg/L	54	-	-	-
Sodium	0.5	mg/L	1000	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	0.03	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	0.13	0.12	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	0.03	0.02	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.03	^{N09} 0.02	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-

Client Sample ID			SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0015039	B23-Fe0015040	B23-Fe0015041	B23-Fe0015042
Date Sampled			Feb 07, 2023	Feb 07, 2023	Feb 07, 2023	Feb 07, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C4-PFBA (surr.)	1	%	64	113	-	-
13C5-PFPeA (surr.)	1	%	81	126	-	-
13C5-PFHxA (surr.)	1	%	81	104	-	-
13C4-PFHpA (surr.)	1	%	50	68	-	-
13C8-PFOA (surr.)	1	%	89	114	-	-
13C5-PFNA (surr.)	1	%	123	80	-	-
13C6-PFDA (surr.)	1	%	100	74	-	-
13C2-PFUnDA (surr.)	1	%	98	93	-	-
13C2-PFDoDA (surr.)	1	%	77	84	-	-
13C2-PFTeDA (surr.)	1	%	94	74	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
13C8-FOSA (surr.)	1	%	80	90	-	-
D3-N-MeFOSA (surr.)	1	%	107	65	-	-
D5-N-EtFOSA (surr.)	1	%	132	71	-	-
D7-N-MeFOSE (surr.)	1	%	132	55	-	-
D9-N-EtFOSE (surr.)	1	%	75	59	-	-
D5-N-EtFOSAA (surr.)	1	%	67	111	-	-
D3-N-MeFOSAA (surr.)	1	%	57	84	-	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	0.02	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	0.16	< 0.01	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	^{N09} 0.15	^{N09} 0.12	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	^{N09} 0.07	^{N09} 0.04	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 1.3	^{N09} 0.44	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
13C3-PFBS (surr.)	1	%	146	106	-	-
18O2-PFHxS (surr.)	1	%	56	72	-	-
13C8-PFOS (surr.)	1	%	92	72	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSa) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSa) ^{N11}	0.05	ug/L	1.5	1.3	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSa) ^{N11}	0.01	ug/L	0.09	0.04	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSa) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-

Client Sample ID			SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0015039	B23-Fe0015040	B23-Fe0015041	B23-Fe0015042
Date Sampled			Feb 07, 2023	Feb 07, 2023	Feb 07, 2023	Feb 07, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
13C2-4:2 FTSA (surr.)	1	%	41	22	-	-
13C2-6:2 FTSA (surr.)	1	%	83	68	-	-
13C2-8:2 FTSA (surr.)	1	%	75	55	-	-
13C2-10:2 FTSA (surr.)	1	%	86	116	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.45	0.56	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	1.33	0.46	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.48	0.58	-	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	3.23	2.11	-	-
Sum of PFASs (n=30)*	0.1	ug/L	3.46	2.15	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.015	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.015	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
13C8-FOSA (surr.)	1	%	-	-	44	-
D3-N-MeFOSA (surr.)	1	%	-	-	56	-
D5-N-EtFOSA (surr.)	1	%	-	-	60	-
D7-N-MeFOSE (surr.)	1	%	-	-	89	-
D9-N-EtFOSE (surr.)	1	%	-	-	103	-
D5-N-EtFOSAA (surr.)	1	%	-	-	69	-
D3-N-MeFOSAA (surr.)	1	%	-	-	74	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.015	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	65	-
13C5-PFPeA (surr.)	1	%	-	-	62	-
13C5-PFHxA (surr.)	1	%	-	-	96	-

Client Sample ID			SJO6_UW005	SJO6_PW005	SJO6_TW005	SJO6_DW005
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0015039	B23-Fe0015040	B23-Fe0015041	B23-Fe0015042
Date Sampled			Feb 07, 2023	Feb 07, 2023	Feb 07, 2023	Feb 07, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
13C4-PFHpA (surr.)	1	%	-	-	83	-
13C8-PFOA (surr.)	1	%	-	-	76	-
13C5-PFNA (surr.)	1	%	-	-	79	-
13C6-PFDA (surr.)	1	%	-	-	78	-
13C2-PFUnDA (surr.)	1	%	-	-	55	-
13C2-PFDoDA (surr.)	1	%	-	-	63	-
13C2-PFTeDA (surr.)	1	%	-	-	71	-
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	59	-
18O2-PFHxS (surr.)	1	%	-	-	96	-
13C8-PFOS (surr.)	1	%	-	-	82	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	41	-
13C2-6:2 FTSA (surr.)	1	%	-	-	85	-
13C2-8:2 FTSA (surr.)	1	%	-	-	67	-
13C2-10:2 FTSA (surr.)	1	%	-	-	60	-

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
BTEX	Brisbane	Feb 08, 2023	14 Days
- Method: USEPA SW846 8260			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Feb 08, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Brisbane	Feb 08, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Feb 08, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Feb 08, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Chlorinated Hydrocarbons	Melbourne	Feb 13, 2023	7 Days
- Method: USEPA 8121 Chlorinated Hydrocarbons			
Biochemical Oxygen Demand (BOD-5 Day)	Brisbane	Feb 08, 2023	2 Days
- Method: APHA 5210B			
Chemical Oxygen Demand (COD)	Melbourne	Feb 15, 2023	28 Days
- Method: LTM-INO-4220 Determination of COD in Water			
Dissolved Organic Carbon	Melbourne	Feb 13, 2023	28 Days
- Method: APHA 5310B Dissolved Organic Carbon			
Total Organic Carbon	Melbourne	Feb 13, 2023	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103 °C to 105 °C	Brisbane	Feb 09, 2023	7 Days
- Method: APHA 2540 D			
Metals M7	Brisbane	Feb 08, 2023	180 Days
- Method: USEPA 6010/6020 Heavy Metals			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Feb 13, 2023	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Brisbane	Feb 08, 2023	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Brisbane	Feb 08, 2023	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Feb 13, 2023	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Feb 13, 2023	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Total Kjeldahl Nitrogen (as N)	Melbourne	Feb 13, 2023	28 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphate total (as P)	Melbourne	Feb 13, 2023	28 Days
- Method: LTM-INO-4040 Phosphate by CFA			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAAs)	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Feb 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			

Description	Testing Site	Extracted	Holding Time
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Feb 08, 2023	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Feb 08, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Feb 08, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Feb 08, 2023	28 Days

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575
Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 961508
Phone: 1300 727 527
Fax:

Received: Feb 7, 2023 6:41 PM
Due: Feb 15, 2023
Priority: 5 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X		X	X	X	X	X		X	
Brisbane Laboratory - NATA # 1261 Site # 20794						X				X		X	X		X	X		X
External Laboratory																		
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID													
1	SJO6_UW005	Feb 07, 2023		Water	B23-Fe0015039	X	X	X	X	X	X	X	X	X	X	X	X	
2	SJO6_PW005	Feb 07, 2023		Water	B23-Fe0015040								X			X		
3	SJO6_TW005	Feb 07, 2023		Water	B23-Fe0015041								X					X
4	SJO6_DW005	Feb 07, 2023		Water	B23-Fe0015042								X					
Test Counts						1	1	1	1	1	1	1	4	1	1	2	1	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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 (PFTriDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
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	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	102			70-130	Pass	
Toluene	%	102			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total*	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	97			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons							
TRH C6-C9	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	93			70-130	Pass	
Chloride	%	115			70-130	Pass	
Nitrate & Nitrite (as N)	%	100			70-130	Pass	
Phosphate total (as P)	%	81			70-130	Pass	
Sulphate (as SO ₄)	%	105			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	114			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	100			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	73			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	76			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	102			80-120	Pass	
Cadmium	%	96			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	109			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	106			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	92			80-120	Pass	
Magnesium	%	87			80-120	Pass	
Potassium	%	89			80-120	Pass	
Sodium	%	89			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	96			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	111			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	80			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	94			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	64			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	96			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	94			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	72			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	80			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	100			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	101			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	98			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFASs)							
Perfluorobutanesulfonic acid (PFBS)	%	113			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	107			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	57			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	87			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	66			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	112			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	94			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	72			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	80			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	100			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	101			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	98			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	96			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	111			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	80			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	94			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	99			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	64			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	101			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	96			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFASs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	113			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	107			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	57			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	87			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	66			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	104			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	84			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	105			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	112			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-Fe0020031	NCP	%	92			70-130	Pass	
Toluene	B23-Fe0020031	NCP	%	96			70-130	Pass	
Ethylbenzene	B23-Fe0020031	NCP	%	96			70-130	Pass	
m&p-Xylenes	B23-Fe0020031	NCP	%	97			70-130	Pass	
o-Xylene	B23-Fe0020031	NCP	%	96			70-130	Pass	
Xylenes - Total*	B23-Fe0020031	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B23-Fe0020031	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	B23-Fe0020031	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Chlorinated Hydrocarbons				Result 1					
Hexachlorobenzene	M23-Fe0020471	NCP	%	91			70-130	Pass	
Spike - % Recovery									
				Result 1					
Sulphate (as SO ₄)	B23-Fe0012376	NCP	%	128			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M23-Fe0022906	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-Fe0032814	NCP	%	118			75-125	Pass	
Cadmium	B23-Fe0014919	NCP	%	118			75-125	Pass	
Chromium	B23-Fe0014919	NCP	%	111			75-125	Pass	
Copper	B23-Fe0014919	NCP	%	101			75-125	Pass	
Lead	B23-Fe0014919	NCP	%	98			75-125	Pass	
Nickel	B23-Fe0014919	NCP	%	103			75-125	Pass	
Zinc	B23-Fe0014919	NCP	%	103			75-125	Pass	
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	M23-Fe0020284	NCP	%	92			75-125	Pass	
Magnesium	M23-Fe0020284	NCP	%	112			75-125	Pass	
Potassium	M23-Fe0020284	NCP	%	98			75-125	Pass	
Sodium	M23-Fe0020284	NCP	%	126			75-125	Fail	Q08
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S23-Fe0017032	NCP	%	71			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S23-Fe0017032	NCP	%	71			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S23-Fe0017032	NCP	%	89			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S23-Fe0017032	NCP	%	69			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S23-Fe0017032	NCP	%	61			50-150	Pass	
Perfluorononanoic acid (PFNA)	S23-Fe0017032	NCP	%	61			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S23-Fe0017032	NCP	%	67			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S23-Fe0017032	NCP	%	76			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S23-Fe0017032	NCP	%	81			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S23-Fe0017032	NCP	%	78			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorotetradecanoic acid (PFTeDA)	S23-Fe0017032	NCP	%	68			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S23-Fe0017032	NCP	%	58			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Fe0017032	NCP	%	83			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Fe0017032	NCP	%	52			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Fe0017032	NCP	%	77			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Fe0017032	NCP	%	59			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Fe0017032	NCP	%	74			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Fe0017032	NCP	%	83			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S23-Fe0017032	NCP	%	95			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S23-Fe0017032	NCP	%	102			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S23-Fe0017032	NCP	%	116			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S23-Fe0017032	NCP	%	60			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S23-Fe0017032	NCP	%	71			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S23-Fe0017032	NCP	%	112			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S23-Fe0017032	NCP	%	67			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S23-Fe0017032	NCP	%	70			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Fe0017032	NCP	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S23-Fe0017032	NCP	%	64			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Fe0017032	NCP	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Fe0017032	NCP	%	80			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B23-Fe0015040	CP	%	108			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B23-Fe0015040	CP	%	104			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Fe0015164	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B23-Fe0015164	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Fe0015164	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Fe0015164	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Fe0015164	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Fe0015164	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Fe0015164	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B23-Fe0015164	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	B23-Fe0015164	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	M23-Fe0024881	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	M23-Fe0024881	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	M23-Fe0024881	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Biochemical Oxygen Demand (BOD-5 Day)	B23-Fe0036803	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Chemical Oxygen Demand (COD)	B23-Fe0022849	NCP	mg/L	2900	2100	35	30%	Fail	Q02
Chloride	B23-Fe0012375	NCP	mg/L	5800	5700	1.9	30%	Pass	
Nitrate & Nitrite (as N)	M23-Fe0022903	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Phosphate total (as P)	S23-Fe0021959	NCP	mg/L	1.6	1.5	3.4	30%	Pass	
Sulphate (as SO4)	B23-Fe0016555	NCP	mg/L	**	**	1.4	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M23-Fe0022904	NCP	mg/L	< 0.2	< 0.2	<1	30%	Pass	
Total Organic Carbon	M23-Fe0027013	NCP	mg/L	53	69	25	30%	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Fe0015055	NCP	mg/L	15	16	5.1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M23-Fe0023540	NCP	mg/L	180	170	3.9	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M23-Fe0023540	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M23-Fe0023540	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M23-Fe0023540	NCP	mg/L	180	170	3.9	30%	Pass	

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B23-Fe0018102	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium	B23-Fe0018102	NCP	mg/L	0.0005	0.0004	8.9	30%	Pass
Chromium	B23-Fe0018102	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper	B23-Fe0018102	NCP	mg/L	0.063	0.066	4.8	30%	Pass
Lead	B23-Fe0018102	NCP	mg/L	0.018	0.019	7.1	30%	Pass
Nickel	B23-Fe0018102	NCP	mg/L	0.032	0.034	8.4	30%	Pass
Zinc	B23-Fe0018102	NCP	mg/L	0.52	0.53	2.6	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	M23-Fe0020284	NCP	mg/L	7.9	7.6	4.3	30%	Pass
Magnesium	M23-Fe0020284	NCP	mg/L	280	270	2.1	30%	Pass
Potassium	M23-Fe0020284	NCP	mg/L	74	73	1.1	30%	Pass
Sodium	M23-Fe0020284	NCP	mg/L	950	950	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Fe0015040	CP	ug/L	0.03	0.04	6.0	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Fe0015040	CP	ug/L	0.12	0.13	15	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Fe0015040	CP	ug/L	0.02	0.02	13	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Fe0015040	CP	ug/L	0.02	0.02	27	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Fe0015040	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Fe0015040	CP	ug/L	0.02	0.02	13	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Fe0015040	CP	ug/L	0.12	0.12	2.2	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)				Result 1	Result 2	RPD		
Perfluoroheptanesulfonic acid (PFHpS)	B23-Fe0015040	CP	ug/L	0.04	0.04	12	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Fe0015040	CP	ug/L	0.44	0.44	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Fe0015040	CP	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)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-Fe0015040	CP	ug/L	1.3	1.6	16	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Fe0015040	CP	ug/L	0.04	0.04	7.0	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Fe0015040	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	B23-Fe0015041	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	B23-Fe0015041	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	B23-Fe0015041	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B23-Fe0015041	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	B23-Fe0015041	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	B23-Fe0015041	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q05	The matrix spike concentration is less than five times the background concentration in the sample - therefore the spike recovery cannot be determined
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.

Authorised by:

Ryan Gilbert	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Organic
Edward Lee	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal
Scott Beddoes	Senior Analyst-Inorganic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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 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: **Data**

Report **967204-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **Feb 27, 2023**

Client Sample ID			SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0062381	B23-Fe0062382	B23-Fe0062383	B23-Fe0062384
Date Sampled			Feb 27, 2023	Feb 27, 2023	Feb 27, 2023	Feb 27, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	1.1	0.36	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	26	7.9	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	27	8.4	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	2.4	0.9	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	55.4	17.2	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	0.003	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.009	0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.007	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.005	0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.012	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	118	115	131	123
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	0.08	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	23.92	6.6	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	1.3	0.40	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	1.3	0.40	< 0.02	< 0.02
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	24	6.6	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	23	7.2	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	1.3	0.6	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	48.3	14.4	< 0.1	< 0.1
Chloride	1	mg/L	1700	960	480	530
Dissolved Organic Carbon	5	mg/L	450	1100	200	220
Sulphate (as SO4)	5	mg/L	98	270	240	260
Total Organic Carbon	5	mg/L	460	1100	210	220
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	100	370	12	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	1300	310	230
Carbonate Alkalinity (as CaCO3)	20	mg/L	4000	< 20	< 20	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/L	690	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	4700	1300	310	230

Client Sample ID			SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0062381	B23-Fe0062382	B23-Fe0062383	B23-Fe0062384
Date Sampled			Feb 27, 2023	Feb 27, 2023	Feb 27, 2023	Feb 27, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	0.22	0.073	0.008	0.004
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.006	0.008	0.008	0.014
Copper	0.001	mg/L	0.006	0.005	< 0.001	< 0.001
Lead	0.001	mg/L	0.070	0.025	< 0.001	< 0.001
Nickel	0.001	mg/L	0.55	0.22	0.14	0.18
Zinc	0.005	mg/L	0.051	0.093	< 0.005	0.007
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	2.6	8.9	12	6.1
Magnesium	0.5	mg/L	< 1	7.6	12	6.4
Potassium	0.5	mg/L	250	97	11	11
Sodium	0.5	mg/L	7100	2600	540	560
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	G01< 0.05	< 0.05	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	0.04	0.02	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	N090.08	N090.04	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	N090.02	N090.02	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	0.05	0.02	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C4-PFBA (surr.)	1	%	INT	83	-	-
13C5-PFPeA (surr.)	1	%	Q0947	85	-	-
13C5-PFHxA (surr.)	1	%	63	86	-	-
13C4-PFHpA (surr.)	1	%	58	68	-	-
13C8-PFOA (surr.)	1	%	121	57	-	-
13C5-PFNA (surr.)	1	%	53	82	-	-
13C6-PFDA (surr.)	1	%	63	105	-	-
13C2-PFUnDA (surr.)	1	%	50	83	-	-
13C2-PFDoDA (surr.)	1	%	38	39	-	-
13C2-PFTeDA (surr.)	1	%	80	23	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
13C8-FOSA (surr.)	1	%	10	16	-	-
D3-N-MeFOSA (surr.)	1	%	INT	38	-	-
D5-N-EtFOSA (surr.)	1	%	15	46	-	-
D7-N-MeFOSE (surr.)	1	%	INT	45	-	-

Client Sample ID			SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0062381	B23-Fe0062382	B23-Fe0062383	B23-Fe0062384
Date Sampled			Feb 27, 2023	Feb 27, 2023	Feb 27, 2023	Feb 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D9-N-EtFOSE (surr.)	1	%	INT	39	-	-
D5-N-EtFOSAA (surr.)	1	%	17	24	-	-
D3-N-MeFOSAA (surr.)	1	%	27	34	-	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.06	0.03	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	0.03	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	0.02	< 0.01	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	0.51	0.19	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	0.06	0.03	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	0.67	0.31	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
13C3-PFBS (surr.)	1	%	^{Q09} 152	106	-	-
18O2-PFHxS (surr.)	1	%	101	96	-	-
13C8-PFOS (surr.)	1	%	63	95	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	0.10	0.08	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	0.12	0.02	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C2-4:2 FTSA (surr.)	1	%	27	20	-	-
13C2-6:2 FTSA (surr.)	1	%	124	101	-	-
13C2-8:2 FTSA (surr.)	1	%	147	149	-	-
13C2-10:2 FTSA (surr.)	1	%	INT	158	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.18	0.5	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.72	0.33	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.23	0.52	-	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	1.65	0.73	-	-
Sum of PFASs (n=30)*	0.1	ug/L	1.73	0.79	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.021	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.02	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	-

Client Sample ID			SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0062381	B23-Fe0062382	B23-Fe0062383	B23-Fe0062384
Date Sampled			Feb 27, 2023	Feb 27, 2023	Feb 27, 2023	Feb 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances- Trace						
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
13C8-FOSA (surr.)	1	%	-	-	63	-
D3-N-MeFOSA (surr.)	1	%	-	-	28	-
D5-N-EtFOSA (surr.)	1	%	-	-	34	-
D7-N-MeFOSE (surr.)	1	%	-	-	50	-
D9-N-EtFOSE (surr.)	1	%	-	-	38	-
D5-N-EtFOSAA (surr.)	1	%	-	-	47	-
D3-N-MeFOSAA (surr.)	1	%	-	-	64	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.020	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	109	-
13C5-PFPeA (surr.)	1	%	-	-	109	-
13C5-PFHxA (surr.)	1	%	-	-	110	-
13C4-PFHpA (surr.)	1	%	-	-	88	-
13C8-PFOA (surr.)	1	%	-	-	139	-
13C5-PFNA (surr.)	1	%	-	-	114	-
13C6-PFDA (surr.)	1	%	-	-	141	-
13C2-PFUnDA (surr.)	1	%	-	-	103	-
13C2-PFDoDA (surr.)	1	%	-	-	51	-
13C2-PFTeDA (surr.)	1	%	-	-	27	-
Perfluoroalkyl sulfonic acids (PFSA)- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.001	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	122	-
18O2-PFHxS (surr.)	1	%	-	-	148	-
13C8-PFOS (surr.)	1	%	-	-	92	-

Client Sample ID			SJO6_UW006	SJO6_PW006	SJO6_TW006	SJO6_DW006
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Fe0062381	B23-Fe0062382	B23-Fe0062383	B23-Fe0062384
Date Sampled			Feb 27, 2023	Feb 27, 2023	Feb 27, 2023	Feb 27, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	99	-
13C2-6:2 FTSA (surr.)	1	%	-	-	112	-
13C2-8:2 FTSA (surr.)	1	%	-	-	81	-
13C2-10:2 FTSA (surr.)	1	%	-	-	65	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Mar 01, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Mar 01, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Mar 01, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Mar 01, 2023	7 Days
Eurofins Suite B11E: Cl/SO ₄ /Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Mar 01, 2023	28 Days
Sulphate (as SO ₄) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Mar 01, 2023	28 Days
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Brisbane	Mar 16, 2023	14 Day
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Mar 01, 2023	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Mar 01, 2023	28 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Mar 01, 2023	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Mar 01, 2023	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Mar 01, 2023	180 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 01, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 01, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 01, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 01, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 01, 2023	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 01, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 01, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 01, 2023	28 Days

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575
Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 967204
Phone: 1300 727 527
Fax:

Received: Feb 27, 2023 4:26 PM
Due: Mar 6, 2023
Priority: 5 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Per- and Polyfluoroalkyl Substances (PFASs) - Trace	Eurofins Suite B11.C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11.E: Cl/SO4/Alkalinity	Eurofins Suite B11.E: Cl/SO4/Alkalinity	Eurofins Suite B1	Metals M7	Total Suspended Solids Dried at 103 °C to 105 °C	Total Organic Carbon	Dissolved Organic Carbon
Melbourne Laboratory - NATA # 1261 Site # 1254							X		X	X	X	X		X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X		
External Laboratory															
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID										
1	SJO6_UW006	Feb 27, 2023		Water	B23-Fe0062381	X	X	X	X	X		X	X	X	
2	SJO6_PW006	Feb 27, 2023		Water	B23-Fe0062382	X	X	X	X	X	X		X	X	
3	SJO6_TW006	Feb 27, 2023		Water	B23-Fe0062383	X	X	X	X	X	X			X	X
4	SJO6_DW006	Feb 27, 2023		Water	B23-Fe0062384	X	X	X	X	X	X			X	
Test Counts						4	4	4	4	4	4	4	2	4	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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 (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFASs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	102			70-130	Pass	
TRH C10-C14	%	112			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	103			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	100			70-130	Pass	
Xylenes - Total*	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	109			70-130	Pass	
LCS - % Recovery							
Chloride	%	114			70-130	Pass	
Sulphate (as SO ₄)	%	122			70-130	Pass	
Total Organic Carbon	%	127			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	100			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	%	101			70-130	Pass	
Carbonate Alkalinity (as CaCO ₃)	%	75			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	101			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	91			80-120	Pass	
Cadmium	%	96			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	98			80-120	Pass	
Lead	%	98			80-120	Pass	
Nickel	%	100			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	%	103			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	100			80-120	Pass	
Magnesium	%	99			80-120	Pass	
Potassium	%	92			80-120	Pass	
Sodium	%	94			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	107			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	113			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	90			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	92			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	107			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	87			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	102			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	59			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	95			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	76			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	68			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	72			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	111			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	97			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	92			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	95			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	132			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	54			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	94			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	76			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	59			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	106			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)	%	79			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	137			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	59			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	95			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	76			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	68			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	72			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	111			50-150	Pass	

Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	97		50-150	Pass	
LCS - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace								
Perfluorobutanoic acid (PFBA)			%	112		50-150	Pass	
Perfluoropentanoic acid (PFPeA)			%	107		50-150	Pass	
Perfluorohexanoic acid (PFHxA)			%	113		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	90		50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	90		50-150	Pass	
Perfluorononanoic acid (PFNA)			%	99		50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	92		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	87		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	98		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	107		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	102		50-150	Pass	
LCS - % Recovery								
Perfluoroalkyl sulfonic acids (PFASs)- Trace								
Perfluorobutanesulfonic acid (PFBS)			%	92		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	95		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	132		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	54		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	94		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	80		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	98		50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	59		50-150	Pass	
LCS - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace								
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	106		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)			%	79		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	137		50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	B23-Fe0060179	NCP	%	106		70-130	Pass	
TRH C10-C14	B23-Ma0000092	NCP	%	112		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	B23-Fe0060179	NCP	%	98		70-130	Pass	
Toluene	B23-Fe0060179	NCP	%	98		70-130	Pass	
Ethylbenzene	B23-Fe0060179	NCP	%	99		70-130	Pass	
m&p-Xylenes	B23-Fe0060179	NCP	%	102		70-130	Pass	
o-Xylene	B23-Fe0060179	NCP	%	99		70-130	Pass	
Xylenes - Total*	B23-Fe0060179	NCP	%	101		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH C6-C10	B23-Fe0060179	NCP	%	106		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	B23-Ma0000092	NCP	%	109		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	B23-Ma0000030	NCP	%	115		75-125	Pass	
Cadmium	B23-Ma0000030	NCP	%	97		75-125	Pass	
Chromium	B23-Ma0000030	NCP	%	82		75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead	B23-Ma0000030	NCP	%	75			75-125	Pass	
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	B23-Fe0063538	NCP	%	103			75-125	Pass	
Magnesium	B23-Fe0063538	NCP	%	102			75-125	Pass	
Potassium	B23-Fe0063538	NCP	%	94			75-125	Pass	
Sodium	W23-Fe0043524	NCP	%	100			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Fe0062382	CP	%	90			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Fe0062382	CP	%	146			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Fe0062382	CP	%	127			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Fe0062382	CP	%	74			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Fe0062382	CP	%	64			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Fe0062382	CP	%	63			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Fe0062382	CP	%	73			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Fe0062382	CP	%	89			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Fe0062382	CP	%	120			50-150	Pass	
Perfluorotridecanoic acid (PFTDA)	B23-Fe0062382	CP	%	105			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Fe0062382	CP	%	82			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Fe0062382	CP	%	105			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Fe0062382	CP	%	102			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Fe0062382	CP	%	131			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Fe0062382	CP	%	141			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Fe0062382	CP	%	119			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Fe0062382	CP	%	107			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Fe0062382	CP	%	112			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Fe0062382	CP	%	77			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Fe0062382	CP	%	105			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Fe0062382	CP	%	87			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Fe0062382	CP	%	60			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Fe0062382	CP	%	97			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Fe0062382	CP	%	60			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Fe0062382	CP	%	69			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Fe0062382	CP	%	63			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Fe0062382	CP	%	136			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Fe0062382	CP	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Fe0062382	CP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Fe0062382	CP	%	128			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	N23-Ma0000631	NCP	%	85			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	N23-Ma0000631	NCP	%	71			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	N23-Ma0000631	NCP	%	61			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	N23-Ma0000631	NCP	%	100			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	N23-Ma0000631	NCP	%	99			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	N23-Ma0000631	NCP	%	103			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	N23-Ma0000631	NCP	%	105			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	N23-Ma0000631	NCP	%	86			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	N23-Ma0000631	NCP	%	70			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	N23-Ma0000631	NCP	%	135			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	N23-Ma0000631	NCP	%	150			50-150	Pass	
Perfluorooctanoic acid (PFOA)	N23-Ma0000631	NCP	%	56			50-150	Pass	
Perfluorononanoic acid (PFNA)	N23-Ma0000631	NCP	%	79			50-150	Pass	
Perfluorodecanoic acid (PFDA)	N23-Ma0000631	NCP	%	88			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	N23-Ma0000631	NCP	%	95			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	N23-Ma0000631	NCP	%	86			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	N23-Ma0000631	NCP	%	94			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	N23-Ma0000631	NCP	%	81			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	N23-Ma0000631	NCP	%	78			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	N23-Ma0000631	NCP	%	81			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	N23-Ma0000631	NCP	%	145			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	N23-Ma0000631	NCP	%	52			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	N23-Ma0000631	NCP	%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	N23-Ma0000631	NCP	%	106			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	N23-Ma0000631	NCP	%	95			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorodecanesulfonic acid (PFDS)	N23-Ma0000631	NCP	%	138			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	N23-Ma0000631	NCP	%	122			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	N23-Ma0000631	NCP	%	128			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	N23-Ma0000631	NCP	%	113			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	N23-Ma0000631	NCP	%	90			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Fe0064090	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	B23-Ma0000090	NCP	mg/L	0.17	0.16	7.5	30%	Pass	
TRH C15-C28	B23-Ma0000090	NCP	mg/L	0.4	0.4	5.2	30%	Pass	
TRH C29-C36	B23-Ma0000090	NCP	mg/L	0.2	0.1	12	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Fe0064090	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B23-Fe0064090	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Fe0064090	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Fe0064090	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Fe0064090	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Fe0064090	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Fe0064090	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B23-Fe0064090	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Ma0000090	NCP	mg/L	0.12	0.11	8.9	30%	Pass	
TRH >C16-C34	B23-Ma0000090	NCP	mg/L	0.4	0.4	6.1	30%	Pass	
TRH >C34-C40	B23-Ma0000090	NCP	mg/L	0.1	0.1	14	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M23-Ma0001725	NCP	mg/L	3000	2900	<1	30%	Pass	
Dissolved Organic Carbon	B23-Fe0062381	CP	mg/L	450	450	1.0	30%	Pass	
Sulphate (as SO4)	M23-Ma0001725	NCP	mg/L	1500	1500	3.2	30%	Pass	
Total Organic Carbon	W23-Fe0064067	NCP	mg/L	75	68	9.1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-Fe0060276	NCP	mg/L	0.001	0.001	<1	30%	Pass	
Cadmium	B23-Fe0060276	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B23-Fe0060276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	B23-Fe0060276	NCP	mg/L	0.001	0.001	3.7	30%	Pass	
Lead	B23-Fe0060276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	B23-Fe0060276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	B23-Fe0060276	NCP	mg/L	0.007	< 0.005	45	30%	Fail	Q15

Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B23-Fe0063538	NCP	mg/L	50	49	<1	30%	Pass
Magnesium	B23-Fe0063538	NCP	mg/L	26	23	3.4	30%	Pass
Potassium	W23-Fe0061610	NCP	mg/L	7.6	7.9	3.5	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Ma0004447	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)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Ma0004447	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Ma0004447	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Fe0062382	CP	mg/L	370	280	27	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Sodium	B23-Fe0063538	NCP	mg/L	86	86	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Fe0062383	CP	ug/L	0.020	0.019	3.1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Fe0062383	CP	ug/L	0.001	0.001	12	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Fe0062383	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Fe0062383	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
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
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal
Sarah McCallion	Senior Analyst-Volatile
Scott Beddoes	Senior Analyst-Inorganic
Scott Beddoes	Senior Analyst-Metal



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **967207-W**

Project name **SJO6**

Project ID **SJO6**

Received Date **Feb 27, 2023**

Client Sample ID			SJO6_DW006
Sample Matrix			Water
Eurofins Sample No.			B23-Fe0062390
Date Sampled			Feb 27, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	0.041
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.041
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	65
D3-N-MeFOSA (surr.)	1	%	57
D5-N-EtFOSA (surr.)	1	%	53
D7-N-MeFOSE (surr.)	1	%	42
D9-N-EtFOSE (surr.)	1	%	49
D5-N-EtFOSAA (surr.)	1	%	65
D3-N-MeFOSAA (surr.)	1	%	83
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.041
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW006
Sample Matrix			Water
Eurofins Sample No.			B23-Fe0062390
Date Sampled			Feb 27, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
13C4-PFBA (surr.)	1	%	54
13C5-PFPeA (surr.)	1	%	113
13C5-PFHxA (surr.)	1	%	115
13C4-PFHpA (surr.)	1	%	102
13C8-PFOA (surr.)	1	%	114
13C5-PFNA (surr.)	1	%	131
13C6-PFDA (surr.)	1	%	121
13C2-PFUnDA (surr.)	1	%	111
13C2-PFDoDA (surr.)	1	%	62
13C2-PFTeDA (surr.)	1	%	62
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	86
18O2-PFHxS (surr.)	1	%	91
13C8-PFOS (surr.)	1	%	80
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	77
13C2-6:2 FTSA (surr.)	1	%	108
13C2-8:2 FTSA (surr.)	1	%	83
13C2-10:2 FTSA (surr.)	1	%	113

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Feb 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Feb 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFASs)- Trace	Brisbane	Feb 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Feb 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 967207
Phone: 1300 727 527
Fax:

Received: Feb 27, 2023 4:26 PM
Due: Feb 28, 2023
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW006	Feb 27, 2023		Water	B23-Fe0062390	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	83			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	87			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	76			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	88			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	97			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	86			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	94			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	87			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	%	86			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	67			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	80			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	81			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	115			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	74			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	111			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	84			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	74			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	102			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	123			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	114			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	100			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	85			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	81			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	64			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	120			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	78			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	149			50-150	Pass	

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
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:

Ryan Gilbert	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **968096-W-V2**

Project name **SJO6**

Project ID **SJO6**

Received Date **Mar 01, 2023**

Client Sample ID			SJO6_DW006R	SJO6_TW006R
Sample Matrix			Water	Water
Eurofins Sample No.			B23- Ma0002617	B23- Ma0002618
Date Sampled			Mar 01, 2023	Mar 01, 2023
Test/Reference	LOR	Unit		
PFASs Summations				
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005	< 0.005
Perfluoroalkyl sulfonamido substances- Trace				
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002
13C8-FOSA (surr.)	1	%	78	111
D3-N-MeFOSA (surr.)	1	%	45	49
D5-N-EtFOSA (surr.)	1	%	40	58
D7-N-MeFOSE (surr.)	1	%	55	72
D9-N-EtFOSE (surr.)	1	%	51	50
D5-N-EtFOSAA (surr.)	1	%	85	59
D3-N-MeFOSAA (surr.)	1	%	77	67
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001

Client Sample ID			SJO6_DW006R	SJO6_TW006R
Sample Matrix			Water	Water
Eurofins Sample No.			B23-Ma0002617	B23-Ma0002618
Date Sampled			Mar 01, 2023	Mar 01, 2023
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	89	29
13C5-PFPeA (surr.)	1	%	104	58
13C5-PFHxA (surr.)	1	%	107	95
13C4-PFHpA (surr.)	1	%	118	79
13C8-PFOA (surr.)	1	%	103	79
13C5-PFNA (surr.)	1	%	111	86
13C6-PFDA (surr.)	1	%	77	136
13C2-PFUnDA (surr.)	1	%	62	107
13C2-PFDoDA (surr.)	1	%	60	97
13C2-PFTeDA (surr.)	1	%	49	70
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	109	65
18O2-PFHxS (surr.)	1	%	112	79
13C8-PFOS (surr.)	1	%	84	95
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	91	INT
13C2-6:2 FTSA (surr.)	1	%	77	83
13C2-8:2 FTSA (surr.)	1	%	70	65
13C2-10:2 FTSA (surr.)	1	%	66	84

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Mar 03, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Mar 03, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Mar 03, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Mar 03, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 968096
Phone: 1300 727 527
Fax:

Received: Mar 1, 2023 4:47 PM
Due: Mar 2, 2023
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW006R	Mar 01, 2023		Water	B23-Ma0002617	X
2	SJO6_TW006R	Mar 01, 2023		Water	B23-Ma0002618	X
Test Counts						2

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	73			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	77			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	81			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	113			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	108			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	108			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	108			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	%	116			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	92			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	107			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	87			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	101			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	97			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	95			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	146			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	50			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	100			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	99			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	61			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	123			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	114			50-150	Pass	

Comments

This report has been revised (V2) following repeat analysis. PFBA result for sample 23-Ma0002618 has now been replaced by the repeat result.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
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:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **970913-W-V2**

Project name **SJO6**

Project ID **SJO6**

Received Date **Mar 10, 2023**

Client Sample ID			SJO6_DW007
Sample Matrix			Water
Eurofins Sample No.			B23- Ma0026023
Date Sampled			Mar 01, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	0.013
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.013
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	13
D3-N-MeFOSA (surr.)	1	%	59
D5-N-EtFOSA (surr.)	1	%	43
D7-N-MeFOSE (surr.)	1	%	178
D9-N-EtFOSE (surr.)	1	%	134
D5-N-EtFOSAA (surr.)	1	%	17
D3-N-MeFOSAA (surr.)	1	%	51
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.013
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW007
Sample Matrix			Water
Eurofins Sample No.			B23-Ma0026023
Date Sampled			Mar 01, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	92
13C5-PFPeA (surr.)	1	%	92
13C5-PFHxA (surr.)	1	%	118
13C4-PFHpA (surr.)	1	%	86
13C8-PFOA (surr.)	1	%	92
13C5-PFNA (surr.)	1	%	96
13C6-PFDA (surr.)	1	%	59
13C2-PFUnDA (surr.)	1	%	59
13C2-PFDoDA (surr.)	1	%	29
13C2-PFTeDA (surr.)	1	%	12
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	121
18O2-PFHxS (surr.)	1	%	109
13C8-PFOS (surr.)	1	%	74
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	114
13C2-6:2 FTSA (surr.)	1	%	118
13C2-8:2 FTSA (surr.)	1	%	91
13C2-10:2 FTSA (surr.)	1	%	46

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Mar 16, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Mar 16, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Mar 16, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Mar 16, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
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Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 970913
Phone: 1300 727 527
Fax:

Received: Mar 10, 2023 2:04 PM
Due: Mar 13, 2023
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW007	Mar 01, 2023		Water	B23-Ma0026023	X

Test Counts

1

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Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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	Lab Sample ID	Units	Result	Repeat				Qualifying Code
Repeat Analysis								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace								
Perfluorobutanoic acid (PFBA)	B23-Ma0026023	ug/L	0.013	0.018				
Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace								
Perfluorobutanoic acid (PFBA)		ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)		ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)		ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)		ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)		ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)		ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)		ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)		ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)		ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)		ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)		ug/L	< 0.001			0.001	Pass	
Method Blank								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace								
Perfluorobutanesulfonic acid (PFBS)		ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)		ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)		ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)		ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)		ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)		ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)		ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)		ug/L	< 0.001			0.001	Pass	
Method Blank								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace								
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)		ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)		ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)		ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)		ug/L	< 0.001			0.001	Pass	
LCS - % Recovery								
Perfluoroalkyl sulfonamido substances- Trace								
Perfluorooctane sulfonamide (FOSA)		%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)		%	91			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)		%	77			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)		%	88			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)		%	87			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)		%	85			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)		%	102			50-150	Pass	
LCS - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace								
Perfluorobutanoic acid (PFBA)		%	81			50-150	Pass	
Perfluoropentanoic acid (PFPeA)		%	86			50-150	Pass	
Perfluorohexanoic acid (PFHxA)		%	75			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)		%	76			50-150	Pass	
Perfluorooctanoic acid (PFOA)		%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)		%	77			50-150	Pass	
Perfluorodecanoic acid (PFDA)		%	102			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorotridecanoic acid (PFTrDA)			%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	95			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	81			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	78			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	98			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	83			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	73			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	89			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	76			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	80			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	83			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Ma0028372	NCP	ug/L	0.002	0.002	11	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Ma0028372	NCP	ug/L	0.003	0.002	3.0	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Ma0028372	NCP	ug/L	0.001	0.001	6.5	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Ma0025094	NCP	ug/L	0.016	0.015	8.4	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Ma0028372	NCP	ug/L	0.009	0.008	11	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Ma0028372	NCP	ug/L	0.017	0.019	8.9	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Ma0025094	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Ma0025094	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Comments

This report has been revised (V2) following repeat analysis. PFBA results for sample 23-Ma0026023 have been confirmed. Repeat data is available at the start of the QC section.

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).
Q05	The matrix spike concentration is less than five times the background concentration in the sample - therefore the spike recovery cannot be determined

Authorised by:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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Attention: **Data**

Report **971145-W**
 Project name **SJ06**
 Project ID **SJ06**
 Received Date **Mar 10, 2023**

Client Sample ID			SJ06_UW007	SJ06_PW007	SJ06_TW007	SJ06_DW007
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Ma0028328	B23- Ma0028329	B23- Ma0028330	B23- Ma0028331
Date Sampled			Mar 09, 2023	Mar 09, 2023	Mar 09, 2023	Mar 09, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	0.91	0.78	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	17	11	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	17	8.1	0.3	0.2
TRH C29-C36	0.1	mg/L	1.5	0.8	0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	35.5	19.9	0.4	0.2
BTEX						
Benzene	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	114	101	121	125
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	17.99	12	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	1.1	0.93	< 0.02	0.03
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	1.1	0.93	< 0.02	0.03
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	18	12	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	17	7.6	0.3	0.2
TRH >C34-C40	0.1	mg/L	0.8	0.5	0.2	0.1
TRH >C10-C40 (total)*	0.1	mg/L	35.8	20.1	0.5	0.3
Chloride	1	mg/L	1600	1900	1300	1400
Dissolved Organic Carbon	5	mg/L	2300	2000	2400	3200
Sulphate (as SO4)	5	mg/L	310	270	180	170
Total Organic Carbon	5	mg/L	2300	2000	2700	3300
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	31	29	21	17
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	4900	4800	2100	2000
Carbonate Alkalinity (as CaCO3)	20	mg/L	R16< 40	R16< 40	R16< 40	R16< 40
Hydroxide Alkalinity (as CaCO3)	20	mg/L	R16< 40	R16< 40	R16< 40	R16< 40
Total Alkalinity (as CaCO3)	20	mg/L	4900	4800	2100	2000

Client Sample ID			SJ06_UW007	SJ06_PW007	SJ06_TW007	SJ06_DW007
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Ma0028328	B23-Ma0028329	B23-Ma0028330	B23-Ma0028331
Date Sampled			Mar 09, 2023	Mar 09, 2023	Mar 09, 2023	Mar 09, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	0.18	0.12	0.026	0.009
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.024	0.023	0.043	0.038
Copper	0.001	mg/L	0.040	0.013	0.008	0.006
Lead	0.001	mg/L	0.012	0.004	0.007	0.007
Nickel	0.001	mg/L	0.65	0.57	0.25	0.27
Zinc	0.005	mg/L	0.35	0.30	0.054	0.040
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	1.5	< 0.5	11	30
Magnesium	0.5	mg/L	0.9	< 0.5	8.5	25
Potassium	0.5	mg/L	240	210	110	120
Sodium	0.5	mg/L	6600	5800	3200	3500
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	0.08	0.06	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.04	^{N09} 0.03	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	0.01	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C4-PFBA (surr.)	1	%	63	82	-	-
13C5-PFPeA (surr.)	1	%	60	83	-	-
13C5-PFHxA (surr.)	1	%	43	49	-	-
13C4-PFHpA (surr.)	1	%	51	74	-	-
13C8-PFOA (surr.)	1	%	56	82	-	-
13C5-PFNA (surr.)	1	%	93	150	-	-
13C6-PFDA (surr.)	1	%	82	74	-	-
13C2-PFUnDA (surr.)	1	%	51	99	-	-
13C2-PFDoDA (surr.)	1	%	20	25	-	-
13C2-PFTeDA (surr.)	1	%	15	33	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
13C8-FOSA (surr.)	1	%	17	30	-	-
D3-N-MeFOSA (surr.)	1	%	INT	16	-	-
D5-N-EtFOSA (surr.)	1	%	34	20	-	-

Client Sample ID			SJ06_UW007	SJ06_PW007	SJ06_TW007	SJ06_DW007
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Ma0028328	B23-Ma0028329	B23-Ma0028330	B23-Ma0028331
Date Sampled			Mar 09, 2023	Mar 09, 2023	Mar 09, 2023	Mar 09, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D7-N-MeFOSE (surr.)	1	%	28	INT	-	-
D9-N-EtFOSE (surr.)	1	%	24	INT	-	-
D5-N-EtFOSAA (surr.)	1	%	INT	11	-	-
D3-N-MeFOSAA (surr.)	1	%	25	14	-	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.09	0.04	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	0.09	0.02	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	^{N09} 0.67	^{N09} 0.42	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	^{N09} 0.07	^{N09} 0.06	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 0.66	^{N09} 0.38	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
13C3-PFBS (surr.)	1	%	53	^{Q09} 172	-	-
18O2-PFHxS (surr.)	1	%	94	84	-	-
13C8-PFOS (surr.)	1	%	53	61	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	0.17	0.17	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	0.14	0.09	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C2-4:2 FTSA (surr.)	1	%	22	21	-	-
13C2-6:2 FTSA (surr.)	1	%	50	49	-	-
13C2-8:2 FTSA (surr.)	1	%	^{Q09} 35	53	-	-
13C2-10:2 FTSA (surr.)	1	%	58	115	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.33	0.8	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.7	0.41	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.37	0.83	-	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	1.85	1.19	-	-
Sum of PFASs (n=30)*	0.1	ug/L	2.01	1.28	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.018	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.015	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	-

Client Sample ID			SJ06_UW007	SJ06_PW007	SJ06_TW007	SJ06_DW007
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Ma0028328	B23-Ma0028329	B23-Ma0028330	B23-Ma0028331
Date Sampled			Mar 09, 2023	Mar 09, 2023	Mar 09, 2023	Mar 09, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances- Trace						
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
13C8-FOSA (surr.)	1	%	-	-	23	-
D3-N-MeFOSA (surr.)	1	%	-	-	14	-
D5-N-EtFOSA (surr.)	1	%	-	-	11	-
D7-N-MeFOSE (surr.)	1	%	-	-	39	-
D9-N-EtFOSE (surr.)	1	%	-	-	35	-
D5-N-EtFOSAA (surr.)	1	%	-	-	25	-
D3-N-MeFOSAA (surr.)	1	%	-	-	98	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.014	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	99	-
13C5-PFPeA (surr.)	1	%	-	-	91	-
13C5-PFHxA (surr.)	1	%	-	-	110	-
13C4-PFHpA (surr.)	1	%	-	-	108	-
13C8-PFOA (surr.)	1	%	-	-	96	-
13C5-PFNA (surr.)	1	%	-	-	110	-
13C6-PFDA (surr.)	1	%	-	-	93	-
13C2-PFUnDA (surr.)	1	%	-	-	59	-
13C2-PFDoDA (surr.)	1	%	-	-	23	-
13C2-PFTeDA (surr.)	1	%	-	-	23	-
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.003	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	^{N09} 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	114	-
18O2-PFHxS (surr.)	1	%	-	-	122	-
13C8-PFOS (surr.)	1	%	-	-	108	-

Client Sample ID			SJ06_UW007	SJ06_PW007	SJ06_TW007	SJ06_DW007
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Ma0028328	B23-Ma0028329	B23-Ma0028330	B23-Ma0028331
Date Sampled			Mar 09, 2023	Mar 09, 2023	Mar 09, 2023	Mar 09, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	138	-
13C2-6:2 FTSA (surr.)	1	%	-	-	50	-
13C2-8:2 FTSA (surr.)	1	%	-	-	140	-
13C2-10:2 FTSA (surr.)	1	%	-	-	66	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Mar 14, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Mar 14, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Mar 14, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Mar 14, 2023	7 Days
Eurofins Suite B11E: Cl/SO ₄ /Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Brisbane	Mar 14, 2023	28 Day
Sulphate (as SO ₄) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Brisbane	Mar 14, 2023	28 Day
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Brisbane	Mar 15, 2023	14 Day
Dissolved Organic Carbon	Melbourne	Mar 15, 2023	28 Days
- Method: APHA 5310B Dissolved Organic Carbon			
Total Organic Carbon	Melbourne	Mar 15, 2023	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Mar 14, 2023	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Mar 14, 2023	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Mar 14, 2023	180 Day
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 14, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 14, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 14, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Mar 14, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 14, 2023	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 14, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 14, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Mar 14, 2023	28 Days

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 971145
Phone: 1300 727 527
Fax:

Received: Mar 10, 2023 2:04 PM
Due: Mar 17, 2023
Priority: 5 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Metals M7	Eurofins Suite B1	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X		X	X				
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X	X	X
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SJ06_UW007	Mar 09, 2023		Water	B23-Ma0028328	X	X	X	X	X	X	X	X	
2	SJ06_PW007	Mar 09, 2023		Water	B23-Ma0028329	X	X	X	X	X	X	X	X	
3	SJ06_TW007	Mar 09, 2023		Water	B23-Ma0028330	X	X	X	X	X	X		X	X
4	SJ06_DW007	Mar 09, 2023		Water	B23-Ma0028331	X	X	X	X	X	X		X	
Test Counts						4	4	4	4	4	4	2	4	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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 (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	104			70-130	Pass	
Ethylbenzene	%	105			70-130	Pass	
m&p-Xylenes	%	105			70-130	Pass	
Xylenes - Total*	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	88			70-130	Pass	
LCS - % Recovery							
Chloride	%	102			70-130	Pass	
Sulphate (as SO4)	%	105			70-130	Pass	
Total Organic Carbon	%	129			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	99			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	%	98			70-130	Pass	
Total Alkalinity (as CaCO3)	%	98			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	102			80-120	Pass	
Cadmium	%	105			80-120	Pass	
Chromium	%	106			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	112			80-120	Pass	
Nickel	%	106			80-120	Pass	
Zinc	%	103			80-120	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	103			80-120	Pass	
Magnesium	%	106			80-120	Pass	
Potassium	%	102			80-120	Pass	
Sodium	%	102			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	106			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	106			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	108			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	88			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	92			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	104			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	108			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	81			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	62			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	82			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	86			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	119			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	93			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	112			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	107			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	108			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	148			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	53			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	98			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	98			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	106			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	91			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	138			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	116			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	141			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	90			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	108			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	139			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	111			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)	%	105			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	78			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	90			50-150	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl carboxylic acids (PFCAs) - Trace									
Perfluorobutanoic acid (PFBA)			%	109			50-150	Pass	
Perfluoropentanoic acid (PFPeA)			%	105			50-150	Pass	
Perfluorohexanoic acid (PFHxA)			%	103			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	86			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	97			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	112			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	115			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	74			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	65			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	137			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	86			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	68			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	126			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	104			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	101			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	59			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	108			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	87			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	103			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Ma0030281	NCP	mg/L	0.30	0.33	9.9	30%	Pass	
TRH C10-C14	B23-Ma0034456	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	B23-Ma0034456	NCP	mg/L	0.3	0.3	1.6	30%	Pass	
TRH C29-C36	B23-Ma0034456	NCP	mg/L	0.2	0.1	19	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Ma0028583	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B23-Ma0028583	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Ma0028583	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Ma0028583	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Ma0028583	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Ma0028583	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Ma0028583	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B23-Ma0030281	NCP	mg/L	0.51	0.57	10	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Ma0034456	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	B23-Ma0034456	NCP	mg/L	0.4	0.4	8.1	30%	Pass	
TRH >C34-C40	B23-Ma0034456	NCP	mg/L	0.2	0.1	36	30%	Fail	Q15

Duplicate								
				Result 1	Result 2	RPD		
Chloride	B23-Ma0028205	NCP	mg/L	29	29	<1	30%	Pass
Sulphate (as SO ₄)	B23-Ma0028205	NCP	mg/L	34	33	<1	30%	Pass
Total Organic Carbon	M23-Ma0035154	NCP	mg/L	< 5	< 5	<1	30%	Pass
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Ma0033591	NCP	mg/L	740	560	28	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	B23-Ma0028204	NCP	mg/L	40	40	<1	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	B23-Ma0028204	NCP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	B23-Ma0028204	NCP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	B23-Ma0028204	NCP	mg/L	40	40	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B23-Ma0024534	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium	B23-Ma0024534	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	B23-Ma0024534	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper	B23-Ma0024534	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead	B23-Ma0024534	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Nickel	B23-Ma0024534	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc	B23-Ma0024534	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B23-Ma0024534	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Magnesium	B23-Ma0024534	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Potassium	B23-Ma0024534	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Sodium	B23-Ma0024534	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Ma0028328	CP	ug/L	0.08	0.07	19	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Ma0028328	CP	ug/L	0.04	0.05	8.1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTriDA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Ma0028328	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Ma0028328	CP	ug/L	0.09	0.11	15	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Ma0028328	CP	ug/L	0.09	0.07	25	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Ma0028328	CP	ug/L	0.67	0.62	8.1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Ma0028328	CP	ug/L	0.07	0.06	12	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Ma0028328	CP	ug/L	0.66	0.54	19	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Ma0028328	CP	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)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-Ma0028328	CP	ug/L	0.17	0.22	24	30%	Pass
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Ma0028328	CP	ug/L	0.14	0.11	18	30%	Pass
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Ma0028328	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Ma0028372	NCP	ug/L	0.002	0.002	11	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Ma0028372	NCP	ug/L	0.003	0.002	3.0	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Ma0028372	NCP	ug/L	0.001	0.001	6.5	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Ma0025094	NCP	ug/L	0.016	0.015	8.4	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Ma0028372	NCP	ug/L	0.009	0.008	11	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Ma0028372	NCP	ug/L	0.017	0.019	8.9	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Ma0028372	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Ma0028372	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Ma0025094	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Ma0025094	NCP	ug/L	< 0.001	< 0.001	<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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q05	The matrix spike concentration is less than five times the background concentration in the sample - therefore the spike recovery cannot be determined
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R16	The LORs have been raised due to the high concentration of one or more analytes

Authorised by:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **972126-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **Mar 15, 2023**

Client Sample ID			SJO6_QW007R	SJO6_TW007R	SJO6_DW007R
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B23- Ma0036163	B23- Ma0036164	B23- Ma0036165
Date Sampled			Mar 15, 2023	Mar 15, 2023	Mar 15, 2023
Test/Reference	LOR	Unit			
PFASs Summations					
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.005	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	0.026	0.015	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.005	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.026	0.015	< 0.005
Perfluoroalkyl sulfonamido substances- Trace					
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	48	36	77
D3-N-MeFOSA (surr.)	1	%	22	27	44
D5-N-EtFOSA (surr.)	1	%	19	25	46
D7-N-MeFOSE (surr.)	1	%	16	37	39
D9-N-EtFOSE (surr.)	1	%	25	33	42
D5-N-EtFOSAA (surr.)	1	%	79	28	71
D3-N-MeFOSAA (surr.)	1	%	67	69	65
Perfluoroalkyl carboxylic acids (PFCAs) - Trace					
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.021	0.015	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.005	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001

Client Sample ID			SJO6_QW007R	SJO6_TW007R	SJO6_DW007R
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B23-Ma0036163	B23-Ma0036164	B23-Ma0036165
Date Sampled			Mar 15, 2023	Mar 15, 2023	Mar 15, 2023
Test/Reference	LOR	Unit			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace					
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	73	52	76
13C5-PFPeA (surr.)	1	%	75	92	91
13C5-PFHxA (surr.)	1	%	109	108	96
13C4-PFHpA (surr.)	1	%	92	115	99
13C8-PFOA (surr.)	1	%	96	113	106
13C5-PFNA (surr.)	1	%	124	98	87
13C6-PFDA (surr.)	1	%	112	90	74
13C2-PFUnDA (surr.)	1	%	80	66	63
13C2-PFDoDA (surr.)	1	%	64	67	63
13C2-PFTeDA (surr.)	1	%	34	46	70
Perfluoroalkyl sulfonic acids (PFSA)s- Trace					
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	116	132	106
18O2-PFHxS (surr.)	1	%	121	138	104
13C8-PFOS (surr.)	1	%	118	104	89
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	124	67	94
13C2-6:2 FTSA (surr.)	1	%	124	INT	80
13C2-8:2 FTSA (surr.)	1	%	83	82	65
13C2-10:2 FTSA (surr.)	1	%	74	83	115

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Mar 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Mar 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Mar 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Mar 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 972126
Phone: 1300 727 527
Fax:

Received: Mar 15, 2023 3:59 PM
Due: Mar 16, 2023
Priority: 1 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_QW007 2	Mar 15, 2023		Water	B23-Ma0036163	X
2	SJO6_TW007 2	Mar 15, 2023		Water	B23-Ma0036164	X
3	SJO6_DW007 2	Mar 15, 2023		Water	B23-Ma0036165	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	114			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	137			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	122			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	110			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	123			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	91			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	97			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	112			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	104			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	%	123			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	100			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	92			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	105			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	101			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	131			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	117			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	73			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	140			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	98			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	83			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	122			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	105			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	102			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	71			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	116			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	131			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	118			50-150	Pass	

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
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:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **989488-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **May 15, 2023**

Client Sample ID			SJO6_DW008
Sample Matrix			Water
Eurofins Sample No.			B23-My0035068
Date Sampled			May 12, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	69
D3-N-MeFOSA (surr.)	1	%	62
D5-N-EtFOSA (surr.)	1	%	89
D7-N-MeFOSE (surr.)	1	%	60
D9-N-EtFOSE (surr.)	1	%	37
D5-N-EtFOSAA (surr.)	1	%	99
D3-N-MeFOSAA (surr.)	1	%	76
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW008
Sample Matrix			Water
Eurofins Sample No.			B23-My0035068
Date Sampled			May 12, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	73
13C5-PFPeA (surr.)	1	%	68
13C5-PFHxA (surr.)	1	%	82
13C4-PFHpA (surr.)	1	%	71
13C8-PFOA (surr.)	1	%	67
13C5-PFNA (surr.)	1	%	95
13C6-PFDA (surr.)	1	%	65
13C2-PFUnDA (surr.)	1	%	64
13C2-PFDoDA (surr.)	1	%	53
13C2-PFTeDA (surr.)	1	%	33
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	68
18O2-PFHxS (surr.)	1	%	68
13C8-PFOS (surr.)	1	%	94
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	58
13C2-6:2 FTSA (surr.)	1	%	69
13C2-8:2 FTSA (surr.)	1	%	89
13C2-10:2 FTSA (surr.)	1	%	103

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	May 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	May 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	May 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	May 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.: N/A
Report #: 989488
Phone: 1300 727 527
Fax:

Received: May 15, 2023 1:57 PM
Due: May 16, 2023
Priority: 1 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW008	May 12, 2023		Water	B23-My0035068	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	100			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	84			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	82			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	94			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	95			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	85			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	95			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	95			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	96			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	105			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	98			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	76			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	109			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	117			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	110			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	94			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	94			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	106			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	92			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	111			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	81			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	86			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	107			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	117			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	105			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	92			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-My0035068	CP	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-My0035068	CP	%	81			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-My0035068	CP	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-My0035068	CP	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-My0035068	CP	%	94			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-My0035068	CP	%	66			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-My0035068	CP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)s - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-My0035068	CP	%	138			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-My0035068	CP	%	91			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-My0035068	CP	%	113			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-My0035068	CP	%	102			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-My0035068	CP	%	111			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-My0035068	CP	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-My0035068	CP	%	104			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-My0035068	CP	%	123			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-My0035068	CP	%	128			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-My0035068	CP	%	118			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-My0035068	CP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-My0035068	CP	%	88			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-My0035068	CP	%	96			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-My0035068	CP	%	62			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-My0035068	CP	%	105			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-My0035068	CP	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-My0035068	CP	%	124			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-My0035068	CP	%	87			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-My0035068	CP	%	80			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-My0035068	CP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-My0035068	CP	%	116			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-My0035068	CP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-My0035068	CP	%	115			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-My0030789	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-My0030789	NCP	ug/L	0.005	0.004	20	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-My0030789	NCP	ug/L	0.23	0.31	29	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-My0030789	NCP	ug/L	< 0.001	< 0.001	<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	N/A
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:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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 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: **Andrew Reardon**

Report **989484-W**
 Project name **SJO6**
 Project ID **SJO6**
 Received Date **May 15, 2023**

Client Sample ID			SJO6_UW008	SJO6_PW008	SJO6_TW008
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B23-My0035059	B23-My0035060	B23-My0035061
Date Sampled			May 12, 2023	May 12, 2023	May 12, 2023
Test/Reference	LOR	Unit			
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.057	0.093	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.13	0.10	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.30	0.37	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.042	^{N09} 0.053	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.14	^{N09} 0.12	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.021	0.007	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	0.004	0.002	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	0.003	0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	0.001	-
13C4-PFBA (surr.)	1	%	129	122	-
13C5-PFPeA (surr.)	1	%	53	58	-
13C5-PFHxA (surr.)	1	%	58	71	-
13C4-PFHpA (surr.)	1	%	74	115	-
13C8-PFOA (surr.)	1	%	104	116	-
13C5-PFNA (surr.)	1	%	92	161	-
13C6-PFDA (surr.)	1	%	94	126	-
13C2-PFUnDA (surr.)	1	%	101	122	-
13C2-PFDoDA (surr.)	1	%	112	126	-
13C2-PFTeDA (surr.)	1	%	131	77	-
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	0.007	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	0.11	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	0.007	0.032	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	0.003	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-
13C8-FOSA (surr.)	1	%	59	140	-
D3-N-MeFOSA (surr.)	1	%	61	105	-

Client Sample ID			SJO6_UW008	SJO6_PW008	SJO6_TW008
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B23-My0035059	B23-My0035060	B23-My0035061
Date Sampled			May 12, 2023	May 12, 2023	May 12, 2023
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances					
D5-N-EtFOSA (surr.)	1	%	82	87	-
D7-N-MeFOSE (surr.)	1	%	57	62	-
D9-N-EtFOSE (surr.)	1	%	110	69	-
D5-N-EtFOSAA (surr.)	1	%	120	131	-
D3-N-MeFOSAA (surr.)	1	%	97	119	-
Perfluoroalkyl sulfonic acids (PFASs)					
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.023	0.17	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	0.006	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	0.020	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	^{N09} 0.020	^{N09} 0.058	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.23	^{N09} 0.44	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	^{N09} 0.048	^{N09} 0.021	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 3.2	^{N09} 0.46	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	0.005	-
13C3-PFBS (surr.)	1	%	99	130	-
18O2-PFHxS (surr.)	1	%	111	143	-
13C8-PFOS (surr.)	1	%	77	122	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	0.012	0.010	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	1.1	0.66	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.64	0.098	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	71	35	-
13C2-6:2 FTSA (surr.)	1	%	145	^{Q09} 200	-
13C2-8:2 FTSA (surr.)	1	%	^{Q09} 47	125	-
13C2-10:2 FTSA (surr.)	1	%	63	20	-
PFASs Summations					
Sum (PFHxS + PFOS)*	0.001	ug/L	3.43	0.9	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	3.34	0.58	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	3.57	1.02	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	5.862	2.564	-
Sum of PFASs (n=30)*	0.005	ug/L	5.977	2.848	-
PFASs Summations					
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.01
Perfluoroalkyl sulfonamido substances- Trace					
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002

Client Sample ID			SJO6_UW008	SJO6_PW008	SJO6_TW008
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B23-My0035059	B23-My0035060	B23-My0035061
Date Sampled			May 12, 2023	May 12, 2023	May 12, 2023
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances- Trace					
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002
13C8-FOSA (surr.)	1	%	-	-	69
D3-N-MeFOSA (surr.)	1	%	-	-	64
D5-N-EtFOSA (surr.)	1	%	-	-	85
D7-N-MeFOSE (surr.)	1	%	-	-	25
D9-N-EtFOSE (surr.)	1	%	-	-	79
D5-N-EtFOSAA (surr.)	1	%	-	-	125
D3-N-MeFOSAA (surr.)	1	%	-	-	121
Perfluoroalkyl carboxylic acids (PFCAs) - Trace					
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.010
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.001	ug/L	-	-	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001
13C4-PFBA (surr.)	1	%	-	-	42
13C5-PFPeA (surr.)	1	%	-	-	47
13C5-PFHxA (surr.)	1	%	-	-	61
13C4-PFHpA (surr.)	1	%	-	-	75
13C8-PFOA (surr.)	1	%	-	-	67
13C5-PFNA (surr.)	1	%	-	-	62
13C6-PFDA (surr.)	1	%	-	-	95
13C2-PFUnDA (surr.)	1	%	-	-	67
13C2-PFDoDA (surr.)	1	%	-	-	74
13C2-PFTeDA (surr.)	1	%	-	-	39
Perfluoroalkyl sulfonic acids (PFSA)- Trace					
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001
13C3-PFBS (surr.)	1	%	-	-	69
18O2-PFHxS (surr.)	1	%	-	-	89
13C8-PFOS (surr.)	1	%	-	-	79

Client Sample ID			SJO6_UW008	SJO6_PW008	SJO6_TW008
Sample Matrix			Water	Water	Water
Eurofins Sample No.			B23-My0035059	B23-My0035060	B23-My0035061
Date Sampled			May 12, 2023	May 12, 2023	May 12, 2023
Test/Reference	LOR	Unit			
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001
13C2-4:2 FTSA (surr.)	1	%	-	-	16
13C2-6:2 FTSA (surr.)	1	%	-	-	87
13C2-8:2 FTSA (surr.)	1	%	-	-	89
13C2-10:2 FTSA (surr.)	1	%	-	-	61

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)	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	May 18, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	72			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	92			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	81			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	118			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	96			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	78			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	82			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	107			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	137			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	68			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	120			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	114			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	89			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	82			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	97			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	92			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s							
Perfluorobutanesulfonic acid (PFBS)	%	98			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	74			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	69			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	78			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	65			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)			%	86			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	63			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	96			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	107			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	75			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace									
Perfluorooctane sulfonamide (FOSA)			%	137			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	97			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	89			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)			%	117			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)			%	122			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	126			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	100			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace									
Perfluorobutanoic acid (PFBA)			%	79			50-150	Pass	
Perfluoropentanoic acid (PFPeA)			%	97			50-150	Pass	
Perfluorohexanoic acid (PFHxA)			%	109			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	122			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	143			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	74			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	73			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	108			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	99			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	114			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	75			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	57			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	66			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	82			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	68			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	77			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	121			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	107			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	76			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-My0033615	NCP	%	79			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-My0033615	NCP	%	106			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Mv0033615	NCP	%	98			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanoic acid (PFHpA)	B23-My0033615	NCP	%	116			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-My0033615	NCP	%	133			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-My0033615	NCP	%	121			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-My0033615	NCP	%	93			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-My0033615	NCP	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-My0033615	NCP	%	138			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-My0033615	NCP	%	138			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-My0033615	NCP	%	70			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-My0033615	NCP	%	69			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-My0033615	NCP	%	129			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-My0033615	NCP	%	122			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-My0033615	NCP	%	101			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-My0033615	NCP	%	97			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-My0033615	NCP	%	111			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-My0033615	NCP	%	114			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-My0033615	NCP	%	111			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-My0033615	NCP	%	74			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-My0033615	NCP	%	68			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-My0033615	NCP	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-My0033615	NCP	%	75			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-My0033615	NCP	%	93			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-My0033615	NCP	%	104			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-My0033615	NCP	%	74			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-My0033615	NCP	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-My0033615	NCP	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-My0033615	NCP	%	133			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-My0033615	NCP	%	91			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	B23-My0035318	NCP	%	58			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-My0035318	NCP	%	73			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-My0035318	NCP	%	74			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-My0035318	NCP	%	60			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-My0035318	NCP	%	100			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-My0035318	NCP	%	88			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-My0035318	NCP	%	93			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-My0035318	NCP	%	106			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-My0035318	NCP	%	62			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-My0035318	NCP	%	126			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-My0035318	NCP	%	103			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-My0035318	NCP	%	110			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-My0035318	NCP	%	81			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-My0035318	NCP	%	65			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-My0035318	NCP	%	62			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-My0035318	NCP	%	69			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-My0035318	NCP	%	68			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-My0035318	NCP	%	76			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-My0035318	NCP	%	128			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-My0035318	NCP	%	55			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-My0035318	NCP	%	50			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-My0035318	NCP	%	69			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-My0035318	NCP	%	78			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-My0035318	NCP	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-My0035318	NCP	%	92			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-My0035318	NCP	%	53			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-My0035318	NCP	%	119			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-My0035318	NCP	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-My0035318	NCP	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-My0035318	NCP	%	57			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-My0061437	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)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-My0061437	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-My0061437	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-My0035061	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-My0035061	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-My0035349	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-My0035061	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-My0035061	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-My0035061	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-My0035061	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-My0035061	CP	ug/L	0.010	0.011	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-My0035061	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-My0035061	CP	ug/L	< 0.001	< 0.001	<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	N/A
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Zoe Flynn	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS
Sarah McCallion	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **999068-W-V2**

Project name **SJO6**

Project ID **SJO6**

Received Date **Jun 12, 2023**

Client Sample ID			SJO6_UW009	SJO6_PW009	G01SJO6_TW009	G01SJO6_DW009
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Jn0032847	B23-Jn0032848	B23-Jn0032849	B23-Jn0032850
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.1	< 0.025
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.1	< 0.025
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.1	< 0.025
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.2	< 0.05
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.1	< 0.025
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.3	< 0.075
4-Bromofluorobenzene (surr.)	1	%	97	98	105	104
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.1	< 0.025
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.05	< 0.05	< 0.05	< 0.05
TRH C6-C10	0.01	mg/L	< 0.01	< 0.01	< 2	< 0.5
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	< 0.01	< 0.01	< 2	< 0.5
Total Recoverable Hydrocarbons						
TRH C6-C9	0.01	mg/L	< 0.01	< 0.01	< 2	< 0.5
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C10-C14	0.05	mg/L	0.07	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.27	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.25	< 0.1	< 0.1	< 0.1
Chloride	1	mg/L	1100	1200	1100	1200
Dissolved Organic Carbon	5	mg/L	9.5	150	73	54
Sulphate (as SO4)	5	mg/L	640	690	630	720
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	39	76	36	8.0
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	330	460	600	430
Carbonate Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	330	460	600	430

Client Sample ID			SJO6_UW009	SJO6_PW009	^{G01} SJO6_TW009	^{G01} SJO6_DW009
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Jn0032847	B23-Jn0032848	B23-Jn0032849	B23-Jn0032850
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	0.027	0.033	0.003	0.005
Cadmium	0.0002	mg/L	0.0007	0.0013	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.008	0.024	0.010	0.012
Copper	0.001	mg/L	0.075	0.21	0.002	0.002
Lead	0.001	mg/L	0.024	0.057	0.002	0.002
Nickel	0.001	mg/L	0.010	0.025	0.25	0.32
Zinc	0.005	mg/L	0.66	1.8	0.021	0.020
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	110	120	5.2	3.6
Magnesium	0.5	mg/L	49	51	16	4.0
Potassium	0.5	mg/L	250	300	54	44
Sodium	0.5	mg/L	610	670	1400	1400

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
BTEX	Melbourne	Jun 16, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 16, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Jun 16, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Brisbane	Jun 16, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Brisbane	Jun 16, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins Suite B11E: Cl/SO₄/Alkalinity			
Chloride	Brisbane	Jun 16, 2023	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO₄)	Brisbane	Jun 16, 2023	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Brisbane	Jun 16, 2023	14 Day
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Dissolved Organic Carbon	Melbourne	Jun 20, 2023	28 Days
- Method: APHA 5310B Dissolved Organic Carbon			
Total Organic Carbon	Brisbane	Jun 30, 2023	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103 °C to 105 °C	Brisbane	Jun 16, 2023	7 Days
- Method: APHA 2540 D			
Metals M7	Brisbane	Jun 16, 2023	180 Days
- Method: USEPA 6010/6020 Heavy Metals			
Eurofins Suite B11C: Na/K/Ca/Mg	Brisbane	Jun 16, 2023	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.: N/A
Report #: 999068
Phone: 1300 727 527
Fax:

Received: Jun 12, 2023 5:35 PM
Due: Jun 20, 2023
Priority: 5 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Metals M7	Eurofins Suite B1	Eurofins Suite B11E: Cl/SO4/Alkalinity	Eurofins Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X			X		
Brisbane Laboratory - NATA # 1261 Site # 20794								X	X	X	X	X
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	SJO6_UW009	Jun 12, 2023		Water	B23-Jn0032847	X	X	X	X	X	X	X
2	SJO6_PW009	Jun 12, 2023		Water	B23-Jn0032848	X	X	X	X	X	X	X
3	SJO6_TW009	Jun 12, 2023		Water	B23-Jn0032849	X	X	X	X	X	X	X
4	SJO6_DW009	Jun 12, 2023		Water	B23-Jn0032850	X	X	X	X	X	X	X
Test Counts						4	4	4	4	4	4	4

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	86			70-130	Pass	
Toluene	%	86			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	89			70-130	Pass	
Xylenes - Total*	%	90			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	81			70-130	Pass	
TRH C6-C10	%	81			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	81			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	%	121			70-130	Pass	
LCS - % Recovery							

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16				%	120			70-130	Pass	
LCS - % Recovery										
Total Organic Carbon				%	74			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C				%	91			70-130	Pass	
LCS - % Recovery										
Alkalinity (speciated)										
Total Alkalinity (as CaCO3)				%	106			70-130	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
BTEX					Result 1					
Benzene	M23-Jn0033624	NCP	%		118			70-130	Pass	
Toluene	M23-Jn0033624	NCP	%		117			70-130	Pass	
Ethylbenzene	M23-Jn0033624	NCP	%		115			70-130	Pass	
m&p-Xylenes	M23-Jn0033624	NCP	%		117			70-130	Pass	
o-Xylene	M23-Jn0033624	NCP	%		117			70-130	Pass	
Xylenes - Total*	M23-Jn0033624	NCP	%		117			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene	M23-Jn0033624	NCP	%		107			70-130	Pass	
TRH C6-C10	M23-Jn0033624	NCP	%		120			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons					Result 1					
TRH C6-C9	M23-Jn0033624	NCP	%		120			70-130	Pass	
Spike - % Recovery										
					Result 1					
Chloride	B23-Jn0029114	NCP	%		74			70-130	Pass	
Sulphate (as SO4)	B23-Jn0029114	NCP	%		87			70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Arsenic	B23-Jn0036823	NCP	%		117			75-125	Pass	
Cadmium	B23-Jn0033603	NCP	%		111			75-125	Pass	
Chromium	B23-Jn0033603	NCP	%		99			75-125	Pass	
Copper	B23-Jn0033603	NCP	%		85			75-125	Pass	
Lead	B23-Jn0033603	NCP	%		91			75-125	Pass	
Nickel	B23-Jn0033603	NCP	%		85			75-125	Pass	
Zinc	B23-Jn0033603	NCP	%		76			75-125	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C10-C14	B23-Jn0032848	CP	%		121			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	B23-Jn0032848	CP	%		120			70-130	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
BTEX					Result 1	Result 2	RPD			
Benzene	M23-Jn0034329	NCP	mg/L		< 0.001	< 0.001	<1	30%	Pass	
Toluene	M23-Jn0034329	NCP	mg/L		< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M23-Jn0034329	NCP	mg/L		< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M23-Jn0034329	NCP	mg/L		< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M23-Jn0034329	NCP	mg/L		< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M23-Jn0034329	NCP	mg/L		< 0.003	< 0.003	<1	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M23-Jn0034329	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	M23-Jn0034329	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	M23-Jn0034329	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	B23-Jn0032847	CP	mg/L	0.07	0.07	4.4	30%	Pass
TRH C15-C28	B23-Jn0032847	CP	mg/L	0.2	0.2	9.5	30%	Pass
TRH C29-C36	B23-Jn0032847	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B23-Jn0032847	CP	mg/L	0.05	0.05	<1	30%	Pass
TRH >C16-C34	B23-Jn0032847	CP	mg/L	0.2	0.2	17	30%	Pass
TRH >C34-C40	B23-Jn0032847	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chloride	B23-Jn0029114	NCP	mg/L	3.7	3.6	<1	30%	Pass
Sulphate (as SO ₄)	B23-Jn0029114	NCP	mg/L	< 5	< 5	<1	30%	Pass
Total Organic Carbon	M22-Oc0051812	NCP	mg/L	26	22	17	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	B23-Jn0028188	NCP	mg/L	83	85	1.9	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	B23-Jn0028188	NCP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	B23-Jn0028188	NCP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	B23-Jn0028188	NCP	mg/L	83	85	1.9	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B23-Jn0033602	NCP	mg/L	0.008	0.008	<1	30%	Pass
Cadmium	B23-Jn0033602	NCP	mg/L	0.0016	0.0015	5.6	30%	Pass
Chromium	B23-Jn0033602	NCP	mg/L	0.014	0.014	1.1	30%	Pass
Copper	B23-Jn0033602	NCP	mg/L	0.37	0.37	<1	30%	Pass
Lead	B23-Jn0033602	NCP	mg/L	0.005	0.004	4.3	30%	Pass
Nickel	B23-Jn0033602	NCP	mg/L	0.36	0.36	<1	30%	Pass
Zinc	B23-Jn0033602	NCP	mg/L	1.4	1.4	<1	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B23-Jn0033602	NCP	mg/L	100	100	1.9	30%	Pass
Magnesium	B23-Jn0033602	NCP	mg/L	580	600	3.8	30%	Pass
Potassium	B23-Jn0036822	NCP	mg/L	320	300	5.9	30%	Pass
Sodium	B23-Jn0033602	NCP	mg/L	5600	5900	4.5	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Jn0032848	CP	mg/L	76	62	20	30%	Pass

Comments

This report has been revised (V2) following repeat analysis. TOC results for sample Jn0032847, Jn0032848, Jn0032849 AND Jn0032850 have now been replaced by the repeat results.

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
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised by:

Zoe Flynn	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Joseph Edouard	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Andrew Reardon**

Report **999077-W-V2**

Project name **SJO6**

Project ID **SJO6**

Received Date **Jun 12, 2023**

Client Sample ID			SJO6_UW009	SJO6_PW009	SJO6_TW009	SJO6_DW009
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Jn0032888	B23-Jn0032889	B23-Jn0032890	B23-Jn0032891
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.008	0.006	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.005	0.006	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.013	0.009	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.012	0.004	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.008	0.004	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.024	0.015	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	0.001	< 0.001	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	0.003	0.003	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
13C4-PFBA (surr.)	1	%	102	92	-	-
13C5-PFPeA (surr.)	1	%	80	80	-	-
13C5-PFHxA (surr.)	1	%	78	89	-	-
13C4-PFHpA (surr.)	1	%	81	87	-	-
13C8-PFOA (surr.)	1	%	79	75	-	-
13C5-PFNA (surr.)	1	%	82	65	-	-
13C6-PFDA (surr.)	1	%	84	52	-	-
13C2-PFUnDA (surr.)	1	%	90	57	-	-
13C2-PFDoDA (surr.)	1	%	74	46	-	-
13C2-PFTeDA (surr.)	1	%	69	45	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
13C8-FOSA (surr.)	1	%	141	57	-	-
D3-N-MeFOSA (surr.)	1	%	113	68	-	-
D5-N-EtFOSA (surr.)	1	%	122	83	-	-

Client Sample ID			SJO6_UW009	SJO6_PW009	SJO6_TW009	SJO6_DW009
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Jn0032888	B23-Jn0032889	B23-Jn0032890	B23-Jn0032891
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D7-N-MeFOSE (surr.)	1	%	67	51	-	-
D9-N-EtFOSE (surr.)	1	%	67	51	-	-
D5-N-EtFOSAA (surr.)	1	%	124	64	-	-
D3-N-MeFOSAA (surr.)	1	%	71	40	-	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.005	0.003	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	0.001	< 0.001	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.014	0.009	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	0.003	0.002	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.37	^{N09} 0.31	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
13C3-PFBS (surr.)	1	%	99	100	-	-
18O2-PFHxS (surr.)	1	%	98	74	-	-
13C8-PFOS (surr.)	1	%	83	55	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	0.091	0.046	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.014	0.011	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
13C2-4:2 FTSA (surr.)	1	%	64	53	-	-
13C2-6:2 FTSA (surr.)	1	%	86	71	-	-
13C2-8:2 FTSA (surr.)	1	%	102	54	-	-
13C2-10:2 FTSA (surr.)	1	%	126	64	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.384	0.319	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.378	0.314	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.392	0.323	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.54	0.408	-	-
Sum of PFASs (n=30)*	0.005	ug/L	0.572	0.428	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.038	0.06
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.029	0.055
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002

Client Sample ID			SJO6_UW009	SJO6_PW009	SJO6_TW009	SJO6_DW009
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Jn0032888	B23-Jn0032889	B23-Jn0032890	B23-Jn0032891
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances- Trace						
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
13C8-FOSA (surr.)	1	%	-	-	47	63
D3-N-MeFOSA (surr.)	1	%	-	-	74	19
D5-N-EtFOSA (surr.)	1	%	-	-	83	19
D7-N-MeFOSE (surr.)	1	%	-	-	49	22
D9-N-EtFOSE (surr.)	1	%	-	-	43	51
D5-N-EtFOSAA (surr.)	1	%	-	-	76	74
D3-N-MeFOSAA (surr.)	1	%	-	-	62	58
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.017	0.053
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	0.012	0.002
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	-	-	79	69
13C5-PFPeA (surr.)	1	%	-	-	93	98
13C5-PFHxA (surr.)	1	%	-	-	105	102
13C4-PFHpA (surr.)	1	%	-	-	98	98
13C8-PFOA (surr.)	1	%	-	-	106	84
13C5-PFNA (surr.)	1	%	-	-	88	74
13C6-PFDA (surr.)	1	%	-	-	73	68
13C2-PFUnDA (surr.)	1	%	-	-	76	63
13C2-PFDoDA (surr.)	1	%	-	-	51	64
13C2-PFTeDA (surr.)	1	%	-	-	34	12
Perfluoroalkyl sulfonic acids (PFSAs)- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.009	0.005
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	-	-	116	103
18O2-PFHxS (surr.)	1	%	-	-	105	96
13C8-PFOS (surr.)	1	%	-	-	87	86

Client Sample ID			SJO6_UW009	SJO6_PW009	SJO6_TW009	SJO6_DW009
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Jn0032888	B23-Jn0032889	B23-Jn0032890	B23-Jn0032891
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	-	-	109	56
13C2-6:2 FTSA (surr.)	1	%	-	-	107	141
13C2-8:2 FTSA (surr.)	1	%	-	-	104	67
13C2-10:2 FTSA (surr.)	1	%	-	-	66	46

Client Sample ID			SJO6_QCD009
Sample Matrix			Water
Eurofins Sample No.			B23-Jn0032892
Date Sampled			Jun 12, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	0.045
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.042
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	36
D3-N-MeFOSA (surr.)	1	%	66
D5-N-EtFOSA (surr.)	1	%	81
D7-N-MeFOSE (surr.)	1	%	42
D9-N-EtFOSE (surr.)	1	%	44
D5-N-EtFOSAA (surr.)	1	%	75
D3-N-MeFOSAA (surr.)	1	%	73
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.041
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_QCD009
Sample Matrix			Water
Eurofins Sample No.			B23-Jn0032892
Date Sampled			Jun 12, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	60
13C5-PFPeA (surr.)	1	%	90
13C5-PFHxA (surr.)	1	%	91
13C4-PFHpA (surr.)	1	%	95
13C8-PFOA (surr.)	1	%	93
13C5-PFNA (surr.)	1	%	88
13C6-PFDA (surr.)	1	%	77
13C2-PFUnDA (surr.)	1	%	75
13C2-PFDoDA (surr.)	1	%	56
13C2-PFTeDA (surr.)	1	%	28
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	0.003
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	103
18O2-PFHxS (surr.)	1	%	100
13C8-PFOS (surr.)	1	%	81
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	102
13C2-6:2 FTSA (surr.)	1	%	86
13C2-8:2 FTSA (surr.)	1	%	109
13C2-10:2 FTSA (surr.)	1	%	66

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)	Brisbane	Jun 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Jun 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Jun 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Jun 15, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Jul 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Jul 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Brisbane	Jul 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Jul 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name:	Sarjaro Pty Limited	Order No.:	N/A	Received:	Jun 12, 2023 5:35 PM
Address:	Unit 11, 16 Innovation Parkway Birtinya QLD 4575	Report #:	999077	Due:	Jun 14, 2023
		Phone:	1300 727 527	Priority:	1 Day
		Fax:		Contact Name:	Andrew Reardon
Project Name:	SJO6				
Project ID:	SJO6				
Eurofins Analytical Services Manager : Zoe Flynn					

Sample Detail						Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	SJO6_UW009	Jun 12, 2023		Water	B23-Jn0032888	X	
2	SJO6_PW009	Jun 12, 2023		Water	B23-Jn0032889	X	
3	SJO6_TW009	Jun 12, 2023		Water	B23-Jn0032890		X
4	SJO6_DW009	Jun 12, 2023		Water	B23-Jn0032891		X
5	SJO6_QCD009	Jun 12, 2023		Water	B23-Jn0032892		X
Test Counts						2	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	73			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	68			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	74			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	74			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	71			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	71			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	85			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	77			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	74			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	65			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	76			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	58			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	64			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	70			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	64			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	70			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	79			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s							
Perfluorobutanesulfonic acid (PFBS)	%	68			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	59			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	56			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	83			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	73			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)	%	78			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	80			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	56			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	71			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	74			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	76			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	76			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	58			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	64			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	70			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	64			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	70			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	79			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	73			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	68			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	74			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	74			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	71			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	71			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	74			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	85			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	77			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	65			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	68			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	59			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	56			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	83			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	73			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	78			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	80			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	56			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	71			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	74			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	76			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Jn0032891	CP	%	79			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Jn0032891	CP	%	66			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Jn0032891	CP	%	65			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Jn0032891	CP	%	74			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Jn0032891	CP	%	58			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Jn0032891	CP	%	59			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Jn0032891	CP	%	75			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Jn0032891	CP	%	119			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Jn0032891	CP	%	65			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Jn0032891	CP	%	81			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Jn0032891	CP	%	83			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Jn0032891	CP	%	65			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Jn0032891	CP	%	80			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Jn0032891	CP	%	79			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Jn0032891	CP	%	54			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Jn0032891	CP	%	69			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Jn0032891	CP	%	63			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Jn0032891	CP	%	59			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Jn0032891	CP	%	68			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Jn0032891	CP	%	51			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Jn0032891	CP	%	59			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Jn0032891	CP	%	78			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Jn0032891	CP	%	71			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Jn0032891	CP	%	72			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Jn0032891	CP	%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Jn0032891	CP	%	51			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Jn0032891	CP	%	71			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Jn0032891	CP	%	78			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Jn0032891	CP	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Jn0032891	CP	%	66			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Jn0032890	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Jn0032890	CP	ug/L	0.017	0.018	4.1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Jn0032890	CP	ug/L	0.012	0.014	11	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSA)- Trace				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Jn0032890	CP	ug/L	0.009	0.009	8.2	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Jn0032890	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Jn0032890	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Comments

This report has been revised (V2) following repeat analysis. PFAS results for sample Jn0032891 have now been replaced by the repeat results.

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	N/A
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:

Zoe Flynn	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS
Sarah McCallion	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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: **Leah Kaslar**

Report **1007972-W**

Project name **SJ06**

Project ID **SJ06**

Received Date **Jul 14, 2023**

Client Sample ID			SJ06_UW009
Sample Matrix			Water
Eurofins Sample No.			B23-JI0029682
Date Sampled			Jul 12, 2023
Test/Reference	LOR	Unit	
Chlorinated Hydrocarbons			
1,2-Dichlorobenzene	0.005	mg/L	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	< 0.005
Benzal chloride	0.0001	mg/L	< 0.0001
Benzotrifluoride	0.0001	mg/L	< 0.0001
Benzyl chloride	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Pentachlorobenzene	0.005	mg/L	< 0.005
Tetrachloro-m-xylene (surr.)	1	%	61

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

Chlorinated Hydrocarbons

Testing Site

Melbourne

Extracted

Jul 17, 2023

Holding Time

7 Days

- Method: USEPA 8121 Chlorinated Hydrocarbons



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261 Site# 25466

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 4551
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: +64 3 343 5201
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1007972
Phone: 1300 727 527
Fax:

Received: Jul 14, 2023 11:00 AM
Due: Jul 21, 2023
Priority: 5 Day
Contact Name: Leah Kaslar

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Chlorinated Hydrocarbons

Melbourne Laboratory - NATA # 1261 Site # 1254

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_UW009	Jul 12, 2023		Water	B23-JI0029682	X

Test Counts

1

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank									
Chlorinated Hydrocarbons									
1.2-Dichlorobenzene			mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene			mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene			mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene			mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene			mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene			mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene			mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene			mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene			mg/L	< 0.005			0.005	Pass	
Benzal chloride			mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride			mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride			mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene			mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene			mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene			mg/L	< 0.005			0.005	Pass	
Hexachloroethane			mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene			mg/L	< 0.005			0.005	Pass	
LCS - % Recovery									
Chlorinated Hydrocarbons									
1.2.4-Trichlorobenzene			%	88			70-130	Pass	
1.4-Dichlorobenzene			%	101			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	L23-JI0028509	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	L23-JI0028509	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	L23-JI0028509	NCP	mg/L	< 0.005	< 0.005	<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

Authorised by:

Zoe Flynn
Edward Lee

Analytical Services Manager
Senior Analyst-Organic



Glenn Jackson
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	: EB2318315	Page	: 1 of 5
Client	: SARJARO PTY LIMITED	Laboratory	: Environmental Division Brisbane
Contact	: ANDREW REARDON	Contact	: Customer Services EB
Address	: Level 8, 2 Corporate Court Bundall 4217	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: SJ06	Date Samples Received	: 16-Jun-2023 15:45
Order number	: ----	Date Analysis Commenced	: 21-Jun-2023
C-O-C number	: ----	Issue Date	: 30-Jun-2023 16:17
Sampler	: LEAH KASLAR		
Site	: ----		
Quote number	: EN/333		
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 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
Keegan Mullane	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

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



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SJO6_QCT009	----	----	----	----
Sampling date / time				12-Jun-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2318315-001	-----	-----	-----	-----
				Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	0.05	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SJ06_QCT009	----	----	----	----
Sampling date / time					12-Jun-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2318315-001	-----	-----	-----	-----
				Result		----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		0.052	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		0.052	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		94.6	----	----	----	----
13C8-PFOA	----	0.002	%		99.6	----	----	----	----



Surrogate Control Limits

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

Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: - ALL INVOICES & STATEMENTS - Andrew Reardon

Report 1006678-W
Project name SJO6
Project ID SJO6
Received Date Jul 11, 2023

Client Sample ID			SJO6_DW009
Sample Matrix			Water
Eurofins Sample No.			B23-JI0019846
Date Sampled			Jul 11, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	81
D3-N-MeFOSA (surr.)	1	%	23
D5-N-EtFOSA (surr.)	1	%	98
D7-N-MeFOSE (surr.)	1	%	< 1
D9-N-EtFOSE (surr.)	1	%	93
D5-N-EtFOSAA (surr.)	1	%	47
D3-N-MeFOSAA (surr.)	1	%	62
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJO6_DW009
Sample Matrix			Water
Eurofins Sample No.			B23-JI0019846
Date Sampled			Jul 11, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
13C4-PFBA (surr.)	1	%	119
13C5-PFPeA (surr.)	1	%	119
13C5-PFHxA (surr.)	1	%	114
13C4-PFHpA (surr.)	1	%	93
13C8-PFOA (surr.)	1	%	108
13C5-PFNA (surr.)	1	%	80
13C6-PFDA (surr.)	1	%	128
13C2-PFUnDA (surr.)	1	%	83
13C2-PFDoDA (surr.)	1	%	52
13C2-PFTeDA (surr.)	1	%	31
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	109
18O2-PFHxS (surr.)	1	%	120
13C8-PFOS (surr.)	1	%	110
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	129
13C2-6:2 FTSA (surr.)	1	%	170
13C2-8:2 FTSA (surr.)	1	%	45
13C2-10:2 FTSA (surr.)	1	%	103

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Jul 11, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Jul 11, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Jul 11, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Jul 11, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 4551
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: +64 3 343 5201
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 1006678
Phone: 1300 727 527
Fax:

Received: Jul 11, 2023 4:30 PM
Due: Jul 12, 2023
Priority: 1 Day
Contact Name: - ALL INVOICES & STATEMENTS

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJO6_DW009	Jul 11, 2023		Water	B23-JI0019846	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	114			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	107			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	89			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	87			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	86			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	76			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	91			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	82			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	109			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	82			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	92			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	74			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	65			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	74			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	90			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	74			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	75			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	66			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	98			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	57			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	72			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	102			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	50			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	94			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	67			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-JI0019846	CP	%	111			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0019846	CP	%	132			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0019846	CP	%	100			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0019846	CP	%	83			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0019846	CP	%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0019846	CP	%	76			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0019846	CP	%	85			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-JI0019846	CP	%	74			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0019846	CP	%	87			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0019846	CP	%	76			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0019846	CP	%	100			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0019846	CP	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0019846	CP	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-JI0019846	CP	%	70			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-JI0019846	CP	%	56			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-JI0019846	CP	%	77			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-JI0019846	CP	%	74			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0019846	CP	%	66			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-JI0019846	CP	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-JI0019846	CP	%	100			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0019846	CP	%	139			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0019846	CP	%	58			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0019846	CP	%	75			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0019846	CP	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-JI0019846	CP	%	146			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-JI0019846	CP	%	71			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0019846	CP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-JI0019846	CP	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0019846	CP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0019846	CP	%	81			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0019848	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0019848	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
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:

Zoe Flynn	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **1009887-W**

Project name **SJ06**

Project ID **SJ06**

Received Date **Jul 21, 2023**

Client Sample ID			SJ06_DW010
Sample Matrix			Water
Eurofins Sample No.			B23-JI0045556
Date Sampled			Jul 21, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	0.094
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.094
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	80
D3-N-MeFOSA (surr.)	1	%	41
D5-N-EtFOSA (surr.)	1	%	37
D7-N-MeFOSE (surr.)	1	%	50
D9-N-EtFOSE (surr.)	1	%	53
D5-N-EtFOSAA (surr.)	1	%	97
D3-N-MeFOSAA (surr.)	1	%	114
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.094
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJ06_DW010
Sample Matrix			Water
Eurofins Sample No.			B23-JI0045556
Date Sampled			Jul 21, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
13C4-PFBA (surr.)	1	%	60
13C5-PFPeA (surr.)	1	%	141
13C5-PFHxA (surr.)	1	%	128
13C4-PFHpA (surr.)	1	%	114
13C8-PFOA (surr.)	1	%	114
13C5-PFNA (surr.)	1	%	119
13C6-PFDA (surr.)	1	%	130
13C2-PFUnDA (surr.)	1	%	115
13C2-PFDoDA (surr.)	1	%	87
13C2-PFTeDA (surr.)	1	%	58
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	162
18O2-PFHxS (surr.)	1	%	106
13C8-PFOS (surr.)	1	%	93
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	122
13C2-6:2 FTSA (surr.)	1	%	82
13C2-8:2 FTSA (surr.)	1	%	79
13C2-10:2 FTSA (surr.)	1	%	122

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Jul 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Jul 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)s- Trace	Brisbane	Jul 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Jul 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261 Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261 Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 4551
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: +64 3 343 5201
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1009887
Phone: 1300 727 527
Fax:

Received: Jul 21, 2023 2:02 PM
Due: Jul 24, 2023
Priority: 1 Day
Contact Name: - ALL INVOICES & STATEMENTS

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJ06_DW010	Jul 21, 2023		Water	B23-JI0045556	X

Test Counts

1

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	79			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	78			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	73			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	77			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	92			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	98			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	103			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	89			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	92			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	96			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	93			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	98			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	89			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	91			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	87			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	101			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	91			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	82			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	113			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	121			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	70			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	94			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	59			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	86			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)			%	97			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-JI0045556	CP	%	85			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0045556	CP	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0045556	CP	%	110			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0045556	CP	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0045556	CP	%	88			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0045556	CP	%	91			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0045556	CP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-JI0045556	CP	%	79			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0045556	CP	%	83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0045556	CP	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0045556	CP	%	98			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0045556	CP	%	91			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0045556	CP	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-JI0045556	CP	%	90			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-JI0045556	CP	%	125			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-JI0045556	CP	%	84			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-JI0045556	CP	%	98			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0045556	CP	%	108			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-JI0045556	CP	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-JI0045556	CP	%	68			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0045556	CP	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0045556	CP	%	99			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0045556	CP	%	67			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0045556	CP	%	73			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-JI0045556	CP	%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-JI0045556	CP	%	56			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0045556	CP	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0045556	CP	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0045556	CP	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0045556	CP	%	113			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0045556	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-JI0045556	CP	ug/L	0.094	0.10	7.6	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0045556	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0045556	CP	ug/L	< 0.001	< 0.001	<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	N/A
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:

Zoe Flynn	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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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: - ALL INVOICES & STATEMENTS - Andrew Reardon

Report 1010043-W
Project name SJ06
Project ID SJ06
Received Date Jul 21, 2023

Client Sample ID			SJ06_UW010	SJ06_PW010	SJ06_TW010	SJ06_DW010
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-JI0047287	B23-JI0047288	B23-JI0047289	B23-JI0047290
Date Sampled			Jul 21, 2023	Jul 21, 2023	Jul 21, 2023	Jul 21, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	0.02	< 0.01	< 0.01	< 0.01
TRH C10-C14	0.05	mg/L	< 0.05	0.08	< 0.05	0.14
TRH C15-C28	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	0.28	< 0.1	0.14
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	95	90	97	98
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.1
TRH C6-C10	0.01	mg/L	0.03	< 0.01	< 0.01	< 0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	0.03	< 0.01	< 0.01	< 0.01
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJ06_UW010	SJ06_PW010	SJ06_TW010	SJ06_DW010
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-JI0047287	B23-JI0047288	B23-JI0047289	B23-JI0047290
Date Sampled			Jul 21, 2023	Jul 21, 2023	Jul 21, 2023	Jul 21, 2023
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	95	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.10
TRH >C16-C34	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	0.2	< 0.1	0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	26	-	-	-
Chloride	1	mg/L	190	270	280	270
Dissolved Organic Carbon	5	mg/L	13	110	86	19
Nitrate & Nitrite (as N)	0.05	mg/L	2.7	-	-	-
Nitrate (as N)	0.02	mg/L	2.5	-	-	-
Nitrite (as N)	0.02	mg/L	0.24	-	-	-
Phosphate total (as P)	0.01	mg/L	0.06	-	-	-
Sulphate (as SO4)	5	mg/L	140	140	150	100
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	45	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	47.7	-	-	-
Total Organic Carbon	5	mg/L	36	< 5	170	110
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	16	15	< 5	66
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	180	75	350	350
Carbonate Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	180	75	350	350
Heavy Metals						
Arsenic	0.001	mg/L	0.005	0.004	0.002	0.005
Cadmium	0.0002	mg/L	0.0010	0.0005	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.002	0.003	0.005	0.007
Copper	0.001	mg/L	0.039	0.004	< 0.001	< 0.001
Lead	0.001	mg/L	0.002	0.006	0.001	0.002
Nickel	0.001	mg/L	0.004	0.010	0.29	0.14
Zinc	0.005	mg/L	0.25	0.77	< 0.005	< 0.005
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	43	45	2.4	2.2
Magnesium	0.5	mg/L	19	19	5.3	4.2
Potassium	0.5	mg/L	35	39	40	38
Sodium	0.5	mg/L	100	120	360	340
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.049	0.051	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.14	0.11	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.29	0.15	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.060	0.012	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.060	0.005	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.008	< 0.001	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	0.002	< 0.001	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	0.005	< 0.001	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	0.005	< 0.001	-	-

Client Sample ID			SJ06_UW010	SJ06_PW010	SJ06_TW010	SJ06_DW010
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-JI0047287	B23-JI0047288	B23-JI0047289	B23-JI0047290
Date Sampled			Jul 21, 2023	Jul 21, 2023	Jul 21, 2023	Jul 21, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	0.007	< 0.001	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
13C4-PFBA (surr.)	1	%	102	124	-	-
13C5-PFPeA (surr.)	1	%	118	146	-	-
13C5-PFHxA (surr.)	1	%	75	97	-	-
13C4-PFHpA (surr.)	1	%	128	134	-	-
13C8-PFOA (surr.)	1	%	^{Q09} 104	96	-	-
13C5-PFNA (surr.)	1	%	104	92	-	-
13C6-PFDA (surr.)	1	%	141	97	-	-
13C2-PFUnDA (surr.)	1	%	115	106	-	-
13C2-PFDoDA (surr.)	1	%	132	119	-	-
13C2-PFTeDA (surr.)	1	%	127	102	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
13C8-FOSA (surr.)	1	%	132	97	-	-
D3-N-MeFOSA (surr.)	1	%	162	93	-	-
D5-N-EtFOSA (surr.)	1	%	193	112	-	-
D7-N-MeFOSE (surr.)	1	%	100	80	-	-
D9-N-EtFOSE (surr.)	1	%	110	85	-	-
D5-N-EtFOSAA (surr.)	1	%	123	105	-	-
D3-N-MeFOSAA (surr.)	1	%	127	109	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.014	0.002	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	0.014	< 0.001	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	0.008	0.001	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	0.003	< 0.001	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.081	0.002	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
13C3-PFBS (surr.)	1	%	91	102	-	-
18O2-PFHxS (surr.)	1	%	109	118	-	-
13C8-PFOS (surr.)	1	%	123	101	-	-

Client Sample ID			SJ06_UW010	SJ06_PW010	SJ06_TW010	SJ06_DW010
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-JI0047287	B23-JI0047288	B23-JI0047289	B23-JI0047290
Date Sampled			Jul 21, 2023	Jul 21, 2023	Jul 21, 2023	Jul 21, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	0.014	0.005	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	2.7	0.16	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.51	0.005	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	0.001	< 0.001	-	-
13C2-4:2 FTSA (surr.)	1	%	71	69	-	-
13C2-6:2 FTSA (surr.)	1	%	83	64	-	-
13C2-8:2 FTSA (surr.)	1	%	86	105	-	-
13C2-10:2 FTSA (surr.)	1	%	127	105	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.089	0.003	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.141	0.007	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.149	0.008	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	3.912	0.498	-	-
Sum of PFASs (n=30)*	0.005	ug/L	3.971	0.503	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	0.003
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	0.003
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.07	0.117
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	0.003
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.061	0.091
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	0.003
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	< 0.005
13C8-FOSA (surr.)	1	%	-	-	62	55
D3-N-MeFOSA (surr.)	1	%	-	-	31	INT
D5-N-EtFOSA (surr.)	1	%	-	-	26	INT
D7-N-MeFOSE (surr.)	1	%	-	-	70	19
D9-N-EtFOSE (surr.)	1	%	-	-	64	20
D5-N-EtFOSAA (surr.)	1	%	-	-	51	14
D3-N-MeFOSAA (surr.)	1	%	-	-	60	17
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.055	0.083
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	0.006	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	0.004

Client Sample ID			SJ06_UW010	SJ06_PW010	SJ06_TW010	SJ06_DW010
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-JI0047287	B23-JI0047288	B23-JI0047289	B23-JI0047290
Date Sampled			Jul 21, 2023	Jul 21, 2023	Jul 21, 2023	Jul 21, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	0.007
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	^{G01} < 0.002
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	-	-	95	63
13C5-PFPeA (surr.)	1	%	-	-	103	86
13C5-PFHxA (surr.)	1	%	-	-	116	105
13C4-PFHpA (surr.)	1	%	-	-	116	102
13C8-PFOA (surr.)	1	%	-	-	121	90
13C5-PFNA (surr.)	1	%	-	-	118	83
13C6-PFDA (surr.)	1	%	-	-	107	75
13C2-PFUnDA (surr.)	1	%	-	-	92	^{Q09} 28
13C2-PFDoDA (surr.)	1	%	-	-	77	19
13C2-PFTeDA (surr.)	1	%	-	-	20	1.2
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	^{N09} 0.004
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.009	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	^{N09} 0.003
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	-	-	109	106
18O2-PFHxS (surr.)	1	%	-	-	117	101
13C8-PFOS (surr.)	1	%	-	-	111	82
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	0.005
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	0.003
13C2-4:2 FTSA (surr.)	1	%	-	-	94	94
13C2-6:2 FTSA (surr.)	1	%	-	-	56	117
13C2-8:2 FTSA (surr.)	1	%	-	-	83	90
13C2-10:2 FTSA (surr.)	1	%	-	-	62	65

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Jul 24, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Jul 24, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Jul 24, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Jul 24, 2023	7 Days
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Jul 25, 2023	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: APHA 5210B	Brisbane	Jul 26, 2023	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Jul 26, 2023	28 Days
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Jul 25, 2023	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Jul 25, 2023	28 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Jul 25, 2023	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Jul 24, 2023	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Jul 24, 2023	180 Day
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Brisbane	Jul 26, 2023	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Brisbane	Jul 24, 2023	28 Day
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Brisbane	Jul 24, 2023	14 Day
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Jul 25, 2023	28 Days
Nitrate (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Jul 25, 2023	28 Days
Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Jul 25, 2023	2 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Jul 25, 2023	28 Days
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphate total (as P) - Method: LTM-INO-4040 Phosphate by CFA	Melbourne	Jul 25, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jul 24, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jul 24, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jul 24, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Jul 24, 2023	28 Days

Description	Testing Site	Extracted	Holding Time
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Jul 24, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Jul 24, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Brisbane	Jul 24, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Jul 24, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1010043
Phone: 1300 727 527
Fax:

Received: Jul 21, 2023 2:02 PM
Due: Jul 28, 2023
Priority: 5 Day
Contact Name: - ALL INVOICES & STATEMENTS

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOx), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace	
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X		X			X					
Brisbane Laboratory - NATA # 1261 Site # 20794						X				X		X	X		X	X	X	X	
External Laboratory																			
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID														
1	SJO6_UW010	Jul 21, 2023		Water	B23-JI0047287	X	X	X	X	X	X	X	X	X	X	X	X		
2	SJO6_PW010	Jul 21, 2023		Water	B23-JI0047288			X	X	X		X	X		X	X	X		
3	SJO6_TW010	Jul 21, 2023		Water	B23-JI0047289			X	X	X		X	X		X	X	X	X	
4	SJO6_DW010	Jul 21, 2023		Water	B23-JI0047290			X	X	X		X	X		X	X	X	X	
Test Counts						1	1	4	4	4	1	4	4	1	4	4	4	2	

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	71			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	103			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
Xylenes - Total*	%	101			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	108			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	72			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	86			70-130	Pass	
Chloride	%	108			70-130	Pass	
Nitrate & Nitrite (as N)	%	98			70-130	Pass	
Nitrate (as N)	%	97			70-130	Pass	
Nitrite (as N)	%	102			70-130	Pass	
Sulphate (as SO4)	%	101			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	105			70-130	Pass	
Total Organic Carbon	%	112			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	98			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	%	116			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	84			80-120	Pass	
Cadmium	%	84			80-120	Pass	
Chromium	%	90			80-120	Pass	
Copper	%	89			80-120	Pass	
Lead	%	94			80-120	Pass	
Nickel	%	84			80-120	Pass	
Zinc	%	92			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	85			80-120	Pass	
Magnesium	%	89			80-120	Pass	
Potassium	%	87			80-120	Pass	
Sodium	%	86			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	81			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	86			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	88			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	86			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	97			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	93			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	86			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	110			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	109			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	79			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	72			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	61			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	71			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	68			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	76			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	88			50-150	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	94			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	95			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	101			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	80			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	99			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	66			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	68			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	66			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	68			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	51			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	55			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	57			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	53			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	54			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	60			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	77			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	75			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	73			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	79			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	73			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	71			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	73			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	53			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	59			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	50			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	64			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	72			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	55			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	74			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	80			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	75			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	70			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	79			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	50			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	74			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	64			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	51			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	B23-JI0050572	NCP	%	94		70-130	Pass	
TRH C10-C14	B23-JI0047287	CP	%	129		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	B23-JI0050572	NCP	%	95		70-130	Pass	
Toluene	B23-JI0050572	NCP	%	93		70-130	Pass	
Ethylbenzene	B23-JI0050572	NCP	%	90		70-130	Pass	
m&p-Xylenes	B23-JI0050572	NCP	%	92		70-130	Pass	
o-Xylene	B23-JI0050572	NCP	%	90		70-130	Pass	
Xylenes - Total*	B23-JI0050572	NCP	%	91		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH C6-C10	B23-JI0050572	NCP	%	96		70-130	Pass	
Spike - % Recovery								
Chlorinated Hydrocarbons				Result 1				
Hexachlorobenzene	M23-JI0062540	NCP	%	105		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	B23-JI0047287	CP	%	125		70-130	Pass	
Spike - % Recovery								
				Result 1				
Chloride	B23-JI0043493	NCP	%	92		70-130	Pass	
Nitrate & Nitrite (as N)	B23-JI0047287	CP	%	73		70-130	Pass	
Nitrate (as N)	B23-JI0047287	CP	%	73		70-130	Pass	
Sulphate (as SO4)	B23-JI0043493	NCP	%	89		70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M23-JI0044111	NCP	%	99		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	B23-JI0047431	NCP	%	95		75-125	Pass	
Cadmium	B23-JI0047431	NCP	%	90		75-125	Pass	
Chromium	B23-JI0047431	NCP	%	92		75-125	Pass	
Copper	B23-JI0047431	NCP	%	89		75-125	Pass	
Lead	B23-JI0047431	NCP	%	94		75-125	Pass	
Nickel	B23-JI0047431	NCP	%	85		75-125	Pass	
Zinc	B23-JI0047431	NCP	%	96		75-125	Pass	
Spike - % Recovery								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1				
Calcium	B23-JI0047431	NCP	%	91		75-125	Pass	
Magnesium	B23-JI0047431	NCP	%	105		75-125	Pass	
Potassium	B23-JI0047431	NCP	%	88		75-125	Pass	
Sodium	B23-JI0046584	NCP	%	86		75-125	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	B23-JI0047287	CP	%	82		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0047287	CP	%	91		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0047287	CP	%	85		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0047287	CP	%	88		50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0047287	CP	%	89		50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0047287	CP	%	80		50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-JI0047287	CP	%	92		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-JI0047287	CP	%	80		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-JI0047287	CP	%	74			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-JI0047287	CP	%	93			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0047287	CP	%	109			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-JI0047287	CP	%	84			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0047287	CP	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0047287	CP	%	63			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0047287	CP	%	73			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0047287	CP	%	62			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0047287	CP	%	71			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0047287	CP	%	74			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-JI0047287	CP	%	91			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-JI0047287	CP	%	81			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0047287	CP	%	114			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0047287	CP	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0047287	CP	%	62			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0047287	CP	%	66			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-JI0047287	CP	%	69			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-JI0047287	CP	%	60			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0047287	CP	%	78			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0047287	CP	%	64			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0047287	CP	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0047287	CP	%	57			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-JI0050083	NCP	%	77			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0050083	NCP	%	54			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0050083	NCP	%	54			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0050083	NCP	%	52			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0050083	NCP	%	56			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0050083	NCP	%	57			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0050083	NCP	%	63			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-JI0050083	NCP	%	71			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0050083	NCP	%	79			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0050083	NCP	%	76			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0050083	NCP	%	87			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0050083	NCP	%	68			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0050083	NCP	%	70			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-JI0050083	NCP	%	66			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-JI0050083	NCP	%	53			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-JI0050083	NCP	%	56			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-JI0050083	NCP	%	52			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0050083	NCP	%	63			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-JI0050083	NCP	%	69			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-JI0050083	NCP	%	55			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0050083	NCP	%	74			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0050083	NCP	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0050083	NCP	%	76			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0050083	NCP	%	68			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-JI0050083	NCP	%	70			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-JI0050083	NCP	%	51			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0050083	NCP	%	72			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0050083	NCP	%	73			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0050083	NCP	%	65			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0050083	NCP	%	51			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	B23-JI0043493	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	B23-JI0043493	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	B23-JI0043493	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	M23-JI0058156	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	M23-JI0058156	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	M23-JI0058156	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-JI0043493	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	B23-JI0043493	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	B23-JI0043493	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Biochemical Oxygen Demand (BOD-5 Day)	B23-JI0044252	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Chemical Oxygen Demand (COD)	M23-JI0051504	NCP	mg/L	9300	9500	2.6	30%	Pass	
Chloride	B23-JI0043493	NCP	mg/L	< 1	< 1	<1	30%	Pass	
Nitrate & Nitrite (as N)	B23-JI0044166	NCP	mg/L	0.13	0.13	3.0	30%	Pass	
Nitrate (as N)	B23-JI0044166	NCP	mg/L	0.13	0.12	8.2	30%	Pass	
Nitrite (as N)	B23-JI0047430	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Sulphate (as SO4)	B23-JI0043493	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M23-JI0055219	NCP	mg/L	39	37	5.2	30%	Pass	
Total Organic Carbon	B23-JI0043493	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	B23-JI0044254	NCP	mg/L	16	18	12	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-JI0047430	NCP	mg/L	0.002	0.002	20	30%	Pass	
Cadmium	B23-JI0047430	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Copper	B23-JI0047430	NCP	mg/L	0.014	0.013	1.2	30%	Pass	
Nickel	B23-JI0047430	NCP	mg/L	0.026	0.025	1.4	30%	Pass	
Zinc	B23-JI0047430	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD			
Calcium	B23-JI0047430	NCP	mg/L	120	120	<1	30%	Pass	
Magnesium	B23-JI0047430	NCP	mg/L	150	140	4.1	30%	Pass	
Potassium	B23-JI0047430	NCP	mg/L	11	11	2.3	30%	Pass	
Sodium	B23-JI0047430	NCP	mg/L	650	630	2.5	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-JI0046584	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-JI0046584	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0046584	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0052315	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0046584	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0046584	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0052315	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0052315	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-JI0046584	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)	B23-JI0046584	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0052315	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0052315	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	B23-JI0047288	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	B23-JI0047288	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	B23-JI0047288	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	B23-JI0047288	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	B23-JI0047288	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	B23-JI0047288	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	B23-JI0047288	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	B23-JI0047288	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	B23-JI0047288	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	B23-JI0047288	CP	mg/L	75	71	5.5	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	B23-JI0047288	CP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	B23-JI0047288	CP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	B23-JI0047288	CP	mg/L	75	71	5.5	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-JI0044237	NCP	ug/L	0.001	0.001	10	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-JI0044237	NCP	ug/L	0.003	0.003	10	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-JI0044237	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0044237	NCP	ug/L	< 0.001	< 0.001	<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	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Zoe Flynn	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Metal
Angelique Lang-Frey	Senior Analyst-Volatile
Caitlin Breeze	Senior Analyst-Inorganic
Edward Lee	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **1011633-W**

Project name **SJ06**

Project ID **SJ06**

Received Date **Jul 27, 2023**

Client Sample ID			SJ06_DW010R
Sample Matrix			Water
Eurofins Sample No.			B23-JI0062454
Date Sampled			Jul 27, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	133
D3-N-MeFOSA (surr.)	1	%	79
D5-N-EtFOSA (surr.)	1	%	78
D7-N-MeFOSE (surr.)	1	%	100
D9-N-EtFOSE (surr.)	1	%	89
D5-N-EtFOSAA (surr.)	1	%	91
D3-N-MeFOSAA (surr.)	1	%	125
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJ06_DW010R
Sample Matrix			Water
Eurofins Sample No.			B23-JI0062454
Date Sampled			Jul 27, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
13C4-PFBA (surr.)	1	%	126
13C5-PFPeA (surr.)	1	%	101
13C5-PFHxA (surr.)	1	%	147
13C4-PFHpA (surr.)	1	%	128
13C8-PFOA (surr.)	1	%	135
13C5-PFNA (surr.)	1	%	111
13C6-PFDA (surr.)	1	%	130
13C2-PFUnDA (surr.)	1	%	125
13C2-PFDoDA (surr.)	1	%	94
13C2-PFTeDA (surr.)	1	%	61
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	141
18O2-PFHxS (surr.)	1	%	93
13C8-PFOS (surr.)	1	%	101
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	106
13C2-6:2 FTSA (surr.)	1	%	103
13C2-8:2 FTSA (surr.)	1	%	118
13C2-10:2 FTSA (surr.)	1	%	102

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Jul 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Jul 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Jul 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Jul 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575
Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1011633
Phone: 1300 727 527
Fax:

Received: Jul 27, 2023 2:10 PM
Due: Jul 28, 2023
Priority: 1 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJ06_DW010 R	Jul 27, 2023		Water	B23-JI0062454	X

Test Counts

1

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	75			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	69			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	66			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	64			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	64			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	70			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	72			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	74			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	67			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	70			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	65			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	68			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	69			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	73			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	107			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	60			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	58			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	77			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	82			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	69			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	70			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	68			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	71			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	68			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	68			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	71			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	69			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	72			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	78			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-JI0062454	CP	%	79			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0062454	CP	%	75			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0062454	CP	%	74			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-JI0062454	CP	%	66			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-JI0062454	CP	%	71			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0062454	CP	%	76			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0062454	CP	%	79			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-JI0062454	CP	%	76			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0062454	CP	%	64			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0062454	CP	%	71			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0062454	CP	%	71			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0062454	CP	%	73			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0062454	CP	%	67			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-JI0062454	CP	%	77			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-JI0062454	CP	%	112			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-JI0062454	CP	%	69			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-JI0062454	CP	%	65			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0062454	CP	%	75			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-JI0062454	CP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-JI0062454	CP	%	66			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0062454	CP	%	72			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0062454	CP	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0062454	CP	%	72			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0062454	CP	%	69			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-JI0062454	CP	%	57			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-JI0062454	CP	%	70			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0062454	CP	%	79			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-JI0062454	CP	%	74			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0062454	CP	%	73			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0062454	CP	%	72			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-JI0062455	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-JI0062455	NCP	ug/L	< 0.001	< 0.001	<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
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:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **1018736-W**

Project name **SJO6**

Project ID **SJO6**

Received Date **Aug 21, 2023**

Client Sample ID			SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Au0051961	B23- Au0051962	B23- Au0051963	B23- Au0051964
Date Sampled			Aug 17, 2023	Aug 17, 2023	Aug 17, 2023	Aug 17, 2023
Test/Reference	LOR	Unit				
Adsorbable Organofluorine (AOF)*	0.05	mg F/L	< 0.05	0.16	0.10	< 0.05
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	87	21	< 5	5.0
Heavy Metals						
Arsenic	0.001	mg/L	0.007	0.004	< 0.001	< 0.001
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.006	0.002	0.007	0.009
Copper	0.001	mg/L	0.005	< 0.001	< 0.001	< 0.001
Lead	0.001	mg/L	0.007	0.004	< 0.001	< 0.001
Nickel	0.001	mg/L	0.011	0.005	0.27	0.22
Zinc	0.005	mg/L	0.028	0.034	0.023	< 0.005

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
Adsorbable Organofluorine (AOF)* - Method: LTM-ORG-2380 Determination of Total Organofluorine by Combustion Ion Chromatography (CIC)	Brisbane	Aug 23, 2023	28 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Aug 25, 2023	7 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Aug 23, 2023	28 Days



Melbourne 6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289
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Perth 46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370
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Auckland 35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402
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Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.: N/A
Report #: 1018736
Phone: 1300 727 527
Fax:

Received: Aug 21, 2023 5:25 PM
Due: Aug 28, 2023
Priority: 5 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Adsorbable Organofluorine (AOF)*	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Total Suspended Solids Dried at 103 °C to 105 °C	Zinc
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X	X	X	X	X
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SJO6_UW011	Aug 17, 2023		Water	B23-Au0051961	X	X	X	X	X	X	X	X	X
2	SJO6_PW011	Aug 17, 2023		Water	B23-Au0051962	X	X	X	X	X	X	X	X	X
3	SJO6_TW011	Aug 17, 2023		Water	B23-Au0051963	X	X	X	X	X	X	X	X	X
4	SJO6_DW011	Aug 17, 2023		Water	B23-Au0051964	X	X	X	X	X	X	X	X	X
Test Counts						4	4	4	4	4	4	4	4	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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank									
Adsorbable Organofluorine (AOF)*			mg F/L	< 0.05			0.05	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C			mg/L	< 5			5	Pass	
Method Blank									
Heavy Metals									
Arsenic			mg/L	< 0.001			0.001	Pass	
Cadmium			mg/L	< 0.0002			0.0002	Pass	
Chromium			mg/L	< 0.001			0.001	Pass	
Copper			mg/L	< 0.001			0.001	Pass	
Lead			mg/L	< 0.001			0.001	Pass	
Nickel			mg/L	< 0.001			0.001	Pass	
Zinc			mg/L	< 0.005			0.005	Pass	
LCS - % Recovery									
Adsorbable Organofluorine (AOF)*			%	93			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C			%	102			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	91			80-120	Pass	
Cadmium			%	91			80-120	Pass	
Chromium			%	100			80-120	Pass	
Copper			%	100			80-120	Pass	
Lead			%	102			80-120	Pass	
Nickel			%	92			80-120	Pass	
Zinc			%	96			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals									
				Result 1					
Arsenic	B23-Au0053911	NCP	%	99			75-125	Pass	
Cadmium	B23-Au0053911	NCP	%	99			75-125	Pass	
Chromium	B23-Au0053911	NCP	%	97			75-125	Pass	
Copper	B23-Au0053911	NCP	%	96			75-125	Pass	
Lead	B23-Au0053911	NCP	%	97			75-125	Pass	
Nickel	B23-Au0053911	NCP	%	88			75-125	Pass	
Zinc	B23-Au0053911	NCP	%	93			75-125	Pass	
Spike - % Recovery									
				Result 1					
Adsorbable Organofluorine (AOF)*	B23-Au0051963	CP	%	105			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Au0049371	NCP	mg/L	34	27	23	30%	Pass	
Duplicate									
Heavy Metals									
				Result 1	Result 2	RPD			
Arsenic	B23-Au0051341	NCP	mg/L	0.002	0.002	1.5	30%	Pass	
Cadmium	B23-Au0062291	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B23-Au0051341	NCP	mg/L	0.001	0.002	10.0	30%	Pass	
Copper	B23-Au0053910	NCP	mg/L	0.005	0.005	14	30%	Pass	
Lead	B23-Au0051341	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	B23-Au0051341	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	B23-Au0049392	NCP	mg/L	0.008	0.007	14	30%	Pass	

Duplicate									
					Result 1	Result 2	RPD		
Adsorbable Organofluorine (AOF)*	B23-Au0051962	CP	mg F/L	0.16	0.16	3.5	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	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Zoe Flynn	Analytical Services Manager
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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Accreditation Number 1261
Site Number 20794

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 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Andrew Reardon**

Report **1018739-W**

Project name **SJO6**

Project ID **SJO6**

Received Date **Aug 21, 2023**

Client Sample ID			SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Au0051985	B23- Au0051986	B23- Au0051987	B23- Au0051988
Date Sampled			Aug 17, 2023	Aug 17, 2023	Aug 17, 2023	Aug 17, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	0.07	0.07	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	0.09	0.10	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	0.26	0.15	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	0.07	0.01	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.09	^{N09} 0.01	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	0.02	< 0.01	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C4-PFBA (surr.)	1	%	74	54	-	-
13C5-PFPeA (surr.)	1	%	42	82	-	-
13C5-PFHxA (surr.)	1	%	27	62	-	-
13C4-PFHpA (surr.)	1	%	29	75	-	-
13C8-PFOA (surr.)	1	%	38	101	-	-
13C5-PFNA (surr.)	1	%	56	98	-	-
13C6-PFDA (surr.)	1	%	101	116	-	-
13C2-PFUnDA (surr.)	1	%	77	100	-	-
13C2-PFDoDA (surr.)	1	%	52	93	-	-
13C2-PFTeDA (surr.)	1	%	65	166	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
13C8-FOSA (surr.)	1	%	63	23	-	-
D3-N-MeFOSA (surr.)	1	%	INT	18	-	-

Client Sample ID			SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Au0051985	B23-Au0051986	B23-Au0051987	B23-Au0051988
Date Sampled			Aug 17, 2023	Aug 17, 2023	Aug 17, 2023	Aug 17, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	17	33	-	-
D7-N-MeFOSE (surr.)	1	%	42	59	-	-
D9-N-EtFOSE (surr.)	1	%	53	55	-	-
D5-N-EtFOSAA (surr.)	1	%	42	65	-	-
D3-N-MeFOSAA (surr.)	1	%	31	63	-	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.03	0.02	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	0.01	0.01	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	0.02	< 0.01	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	^{N09} 0.51	^{N09} 0.09	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 1.1	^{N09} 0.06	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
13C3-PFBS (surr.)	1	%	109	91	-	-
18O2-PFHxS (surr.)	1	%	84	82	-	-
13C8-PFOS (surr.)	1	%	88	106	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	0.66	0.22	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	0.15	< 0.01	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C2-4:2 FTSA (surr.)	1	%	36	57	-	-
13C2-6:2 FTSA (surr.)	1	%	102	81	-	-
13C2-8:2 FTSA (surr.)	1	%	INT	111	-	-
13C2-10:2 FTSA (surr.)	1	%	111	42	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.61	0.15	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	1.19	0.07	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.7	0.16	-	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	3.03	0.73	-	-
Sum of PFASs (n=30)*	0.1	ug/L	3.08	0.74	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.2	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.179	< 0.005
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005

Client Sample ID			SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Au0051985	B23-Au0051986	B23-Au0051987	B23-Au0051988
Date Sampled			Aug 17, 2023	Aug 17, 2023	Aug 17, 2023	Aug 17, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances- Trace						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	-	-	41	66
D3-N-MeFOSA (surr.)	1	%	-	-	28	54
D5-N-EtFOSA (surr.)	1	%	-	-	42	98
D7-N-MeFOSE (surr.)	1	%	-	-	25	84
D9-N-EtFOSE (surr.)	1	%	-	-	66	175
D5-N-EtFOSAA (surr.)	1	%	-	-	66	72
D3-N-MeFOSAA (surr.)	1	%	-	-	71	77
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.17	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	0.009	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	-	-	101	88
13C5-PFPeA (surr.)	1	%	-	-	66	111
13C5-PFHxA (surr.)	1	%	-	-	56	87
13C4-PFHpA (surr.)	1	%	-	-	71	88
13C8-PFOA (surr.)	1	%	-	-	120	113
13C5-PFNA (surr.)	1	%	-	-	116	118
13C6-PFDA (surr.)	1	%	-	-	118	123
13C2-PFUnDA (surr.)	1	%	-	-	105	91
13C2-PFDoDA (surr.)	1	%	-	-	76	80
13C2-PFTeDA (surr.)	1	%	-	-	104	131
Perfluoroalkyl sulfonic acids (PFSA)- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.021	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	-	-	71	92
18O2-PFHxS (surr.)	1	%	-	-	84	86
13C8-PFOS (surr.)	1	%	-	-	97	88

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	SJO6_UW011 Water B23- Au0051985 Aug 17, 2023	SJO6_PW011 Water B23- Au0051986 Aug 17, 2023	SJO6_TW011 Water B23- Au0051987 Aug 17, 2023	SJO6_DW011 Water B23- Au0051988 Aug 17, 2023
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	-	-	43	62
13C2-6:2 FTSA (surr.)	1	%	-	-	53	57
13C2-8:2 FTSA (surr.)	1	%	-	-	92	60
13C2-10:2 FTSA (surr.)	1	%	-	-	79	52

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)	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.: N/A
Report #: 1018739
Phone: 1300 727 527
Fax:

Received: Aug 21, 2023 5:25 PM
Due: Aug 22, 2023
Priority: 1 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	SJO6_UW011	Aug 17, 2023		Water	B23-Au0051985	X	
2	SJO6_PW011	Aug 17, 2023		Water	B23-Au0051986	X	
3	SJO6_TW011	Aug 17, 2023		Water	B23-Au0051987		X
4	SJO6_DW011	Aug 17, 2023		Water	B23-Au0051988		X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	94			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	70			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	111			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	82			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	70			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	91			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	72			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	70			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	75			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	71			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	139			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	81			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	69			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s							
Perfluorobutanesulfonic acid (PFBS)	%	83			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	120			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	142			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	94			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)			%	70			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	109			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	81			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	77			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	77			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	86			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	75			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace									
Perfluorooctane sulfonamide (FOSA)			%	75			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	71			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)			%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)			%	139			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	81			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	69			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace									
Perfluorobutanoic acid (PFBA)			%	94			50-150	Pass	
Perfluoropentanoic acid (PFPeA)			%	83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)			%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	73			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	70			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	111			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	82			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	72			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	70			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	91			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	70			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	83			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	120			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	142			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	94			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	70			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	109			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	81			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	77			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	77			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	86			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
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Au0051985	CP	%	66			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Au0051985	CP	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Au0051985	CP	%	119			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanoic acid (PFHpA)	B23-Au0051985	CP	%	140			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Au0051985	CP	%	134			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Au0051985	CP	%	138			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Au0051985	CP	%	72			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Au0051985	CP	%	81			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Au0051985	CP	%	90			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Au0051985	CP	%	79			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Au0051985	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Au0051990	NCP	%	84			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Au0051990	NCP	%	56			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Au0051990	NCP	%	51			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Au0051990	NCP	%	63			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Au0051990	NCP	%	56			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Au0051990	NCP	%	60			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Au0051990	NCP	%	63			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Au0051990	NCP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Au0051990	NCP	%	56			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Au0051990	NCP	%	66			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Au0051990	NCP	%	57			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Au0051990	NCP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Au0051990	NCP	%	70			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Au0051990	NCP	%	82			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Au0051990	NCP	%	84			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Au0051990	NCP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Au0051990	NCP	%	75			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Au0051990	NCP	%	58			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Au0051990	NCP	%	54			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Au0051986	CP	ug/L	0.07	0.07	5.4	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Au0051986	CP	ug/L	0.10	0.09	1.5	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Au0051986	CP	ug/L	0.15	0.15	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Au0051986	CP	ug/L	0.01	0.02	9.8	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Au0051986	CP	ug/L	0.01	0.01	6.3	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Au0051986	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B23-Au0051986	CP	ug/L	0.02	0.02	9.4	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Au0051986	CP	ug/L	0.01	0.01	7.8	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Au0051986	CP	ug/L	0.09	0.09	6.3	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Au0051986	CP	ug/L	0.06	0.06	5.4	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Au0051986	CP	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)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Au0051986	CP	ug/L	0.22	0.24	9.5	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Au0051986	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Au0051986	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	N/A
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:

Paige Howarth Analytical Services Manager
Jonathon Angell Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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 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: **Andrew Reardon**

Report **1018947-W**

Project name **SJO6**

Project ID **SJO6**

Received Date **Aug 21, 2023**

Client Sample ID			SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
Sample Matrix			TOP - Water	TOP - Water	TOP - Water	TOP - Water
Eurofins Sample No.			B23- Au0051989	B23- Au0051990	B23- Au0051991	B23- Au0051992
Date Sampled			Aug 17, 2023	Aug 17, 2023	Aug 17, 2023	Aug 17, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	2.4	0.21	0.16	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	4.6	0.38	0.02	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	1.2	0.23	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	0.35	0.05	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.10	^{N09} 0.02	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	0.02	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	58	75	67	66
13C5-PFPeA (surr.)	1	%	124	119	121	132
13C5-PFHxA (surr.)	1	%	80	117	111	118
13C4-PFHpA (surr.)	1	%	82	109	108	101
13C8-PFOA (surr.)	1	%	77	80	70	76
13C5-PFNA (surr.)	1	%	111	104	95	106
13C6-PFDA (surr.)	1	%	82	70	71	75
13C2-PFUnDA (surr.)	1	%	84	75	67	71
13C2-PFDoDA (surr.)	1	%	101	78	92	78
13C2-PFTeDA (surr.)	1	%	84	64	82	71
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	76	61	70	70
D3-N-MeFOSA (surr.)	1	%	73	54	104	99

Client Sample ID			SJO6_UW011	SJO6_PW011	SJO6_TW011	SJO6_DW011
Sample Matrix			TOP - Water	TOP - Water	TOP - Water	TOP - Water
Eurofins Sample No.			B23-Au0051989	B23-Au0051990	B23-Au0051991	B23-Au0051992
Date Sampled			Aug 17, 2023	Aug 17, 2023	Aug 17, 2023	Aug 17, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	73	59	90	101
D7-N-MeFOSE (surr.)	1	%	72	50	82	76
D9-N-EtFOSE (surr.)	1	%	95	75	98	118
D5-N-EtFOSAA (surr.)	1	%	99	85	88	87
D3-N-MeFOSAA (surr.)	1	%	85	72	80	82
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.04	0.02	0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	0.01	0.01	0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	^{N09} 0.04	^{N09} 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	^{N09} 0.44	^{N09} 0.08	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	^{N09} 0.03	^{N09} < 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 1.1	^{N09} 0.07	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	88	110	96	105
18O2-PFHxS (surr.)	1	%	89	117	96	104
13C8-PFOS (surr.)	1	%	102	111	114	114
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	115	132	74	105
13C2-6:2 FTSA (surr.)	1	%	52	114	108	56
13C2-8:2 FTSA (surr.)	1	%	81	92	63	68
13C2-10:2 FTSA (surr.)	1	%	110	105	94	88
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.54	0.15	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	1.2	0.09	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.64	0.17	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	10.23	1.06	0.19	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	10.33	1.08	0.2	< 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)	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Aug 21, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
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	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	93			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	87			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	91			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	97			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	116			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	77			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	58			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	53			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	86			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	53			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances									
Perfluorooctane sulfonamide (FOSA)			%	77			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	51			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	54			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)			%	52			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)			%	58			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	65			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	62			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)									
Perfluorobutanesulfonic acid (PFBS)			%	79			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	64			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	70			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	57			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	79			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	64			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	97			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	71			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	89			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	70			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	55			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)									
				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Au0051990	CP	%	95			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Au0051990	CP	%	93			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Au0051990	CP	%	93			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Au0051990	CP	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Au0051990	CP	%	102			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Au0051990	CP	%	118			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Au0051990	CP	%	77			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Au0051990	CP	%	55			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Au0051990	CP	%	55			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Au0051990	CP	%	89			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Au0051990	CP	%	60			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances									
				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Au0051990	CP	%	84			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Au0051990	CP	%	56			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Au0051990	CP	%	51			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Au0051990	CP	%	63			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Au0051990	CP	%	56			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Au0051990	CP	%	60			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Au0051990	CP	%	63			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Au0051990	CP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Au0051990	CP	%	56			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Au0051990	CP	%	66			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Au0051990	CP	%	57			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Au0051990	CP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Au0051990	CP	%	70			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Au0051990	CP	%	82			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Au0051990	CP	%	84			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Au0051990	CP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Au0051990	CP	%	75			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Au0051990	CP	%	58			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Au0051990	CP	%	54			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Au0051989	CP	ug/L	2.4	2.4	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Au0051989	CP	ug/L	4.6	4.4	4.3	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Au0051989	CP	ug/L	1.2	1.2	4.3	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Au0051989	CP	ug/L	0.35	0.38	7.3	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Au0051989	CP	ug/L	0.10	0.10	4.0	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Au0051989	CP	ug/L	0.02	0.02	1.7	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Au0051989	CP	ug/L	0.04	0.05	7.7	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Au0051989	CP	ug/L	0.01	0.01	8.0	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Au0051989	CP	ug/L	0.04	0.03	13	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Au0051989	CP	ug/L	0.44	0.44	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Au0051989	CP	ug/L	0.03	0.02	9.1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Au0051989	CP	ug/L	1.1	1.0	3.7	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Au0051989	CP	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)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Au0051989	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Au0051989	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Au0051989	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	N/A
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:

Zoe Flynn Analytical Services Manager
Jonathon Angell Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: - ALL INVOICES & STATEMENTS - Andrew Reardon

Report 1023049-W-V2

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 05, 2023**

Client Sample ID			SJ06_DW012
Sample Matrix			Water
Eurofins Sample No.			B23- Se0007651
Date Sampled			Sep 05, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	102
D3-N-MeFOSA (surr.)	1	%	68
D5-N-EtFOSA (surr.)	1	%	68
D7-N-MeFOSE (surr.)	1	%	73
D9-N-EtFOSE (surr.)	1	%	68
D5-N-EtFOSAA (surr.)	1	%	87
D3-N-MeFOSAA (surr.)	1	%	81
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJ06_DW012
Sample Matrix			Water
Eurofins Sample No.			B23-Se0007651
Date Sampled			Sep 05, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	113
13C5-PFPeA (surr.)	1	%	137
13C5-PFHxA (surr.)	1	%	118
13C4-PFHpA (surr.)	1	%	117
13C8-PFOA (surr.)	1	%	121
13C5-PFNA (surr.)	1	%	117
13C6-PFDA (surr.)	1	%	90
13C2-PFUnDA (surr.)	1	%	81
13C2-PFDoDA (surr.)	1	%	92
13C2-PFTeDA (surr.)	1	%	57
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	120
18O2-PFHxS (surr.)	1	%	122
13C8-PFOS (surr.)	1	%	120
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	120
13C2-6:2 FTSA (surr.)	1	%	106
13C2-8:2 FTSA (surr.)	1	%	104
13C2-10:2 FTSA (surr.)	1	%	124

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Sep 05, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Sep 05, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Sep 05, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Sep 05, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1023049
Phone: 1300 727 527
Fax:

Received: Sep 5, 2023 2:31 PM
Due: Sep 6, 2023
Priority: 1 Day
Contact Name: - ALL INVOICES & STATEMENTS

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJ06_DW012	Sep 05, 2023		Water	B23-Se0007651	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	81			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	74			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	70			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	68			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	66			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	77			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	79			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	81			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	72			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	71			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	64			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	74			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	77			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	112			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	68			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	65			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	63			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	79			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	79			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	81			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	80			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	88			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	90			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	62			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	72			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	69			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	64			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	87			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0007651	CP	%	71			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0007651	CP	%	73			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0007651	CP	%	68			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0007651	CP	%	62			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0007651	CP	%	69			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0007651	CP	%	66			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0007651	CP	%	82			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)s - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0007651	CP	%	74			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0007651	CP	%	72			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0007651	CP	%	68			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0007651	CP	%	69			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0007651	CP	%	65			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0007651	CP	%	73			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0007651	CP	%	76			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0007651	CP	%	91			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0007651	CP	%	70			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-Se0007651	CP	%	72			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0007651	CP	%	64			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0007651	CP	%	73			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0007651	CP	%	61			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0007651	CP	%	68			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0007651	CP	%	78			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0007651	CP	%	71			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0007651	CP	%	72			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0007651	CP	%	78			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0007651	CP	%	65			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0007651	CP	%	67			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0007651	CP	%	66			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0007651	CP	%	62			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0007651	CP	%	67			50-150	Pass	

Comments

This report has been revised (V2) to correct sample name.

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:

Zoe Flynn Analytical Services Manager
Jonathon Angell Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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 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: - ALL INVOICES & STATEMENTS - Andrew Reardon

Report 1023058-W-V2

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 05, 2023**

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Se0007657	B23- Se0007658	B23- Se0007659	B23- Se0007660
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	0.01	< 0.01	< 0.01	0.01
TRH C10-C14	0.05	mg/L	0.08	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	5.2	0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	1.2	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	6.48	0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	84	85	85	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.11	< 0.05	< 0.05	< 0.05
TRH C6-C10	0.01	mg/L	0.01	< 0.01	< 0.01	0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	0.01	< 0.01	< 0.01	0.01
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0007657	B23-Se0007658	B23-Se0007659	B23-Se0007660
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	58	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.11	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	6.1	0.2	0.1	< 0.1
TRH >C34-C40	0.1	mg/L	0.2	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	6.41	0.2	0.1	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	89	-	-	-
Chloride	1	mg/L	190	-	-	-
Dissolved Organic Carbon	5	mg/L	23	-	-	-
Fluoride	0.5	mg/L	< 0.5	-	-	-
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	-	-	-
Nitrate (as N)	0.02	mg/L	0.03	-	-	-
Nitrite (as N)	0.02	mg/L	0.02	-	-	-
Phosphate total (as P)	0.01	mg/L	0.75	-	-	-
Sulphate (as SO ₄)	5	mg/L	51	-	-	-
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	3.1	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	3.1	-	-	-
Total Organic Carbon	5	mg/L	24	-	-	-
Total OrganoFluorine*	5	mg/L	<5	<5	<5	<5
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	58	26	45	26
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	150	-	-	-
Carbonate Alkalinity (as CaCO ₃)	20	mg/L	< 20	-	-	-
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20	-	-	-
Total Alkalinity (as CaCO ₃)	20	mg/L	150	-	-	-
Heavy Metals						
Arsenic	0.001	mg/L	0.002	0.003	< 0.001	0.001
Cadmium	0.0002	mg/L	0.0003	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.002	0.001	0.003	0.006
Copper	0.001	mg/L	0.006	< 0.001	< 0.001	< 0.001
Lead	0.001	mg/L	0.009	0.002	< 0.001	< 0.001
Nickel	0.001	mg/L	0.002	0.006	0.15	0.31
Zinc	0.005	mg/L	0.10	0.066	< 0.005	0.008
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	47	-	-	-
Magnesium	0.5	mg/L	22	-	-	-
Potassium	0.5	mg/L	10	-	-	-
Sodium	0.5	mg/L	130	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.27	0.26	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.78	0.80	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.77	0.53	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.13	0.042	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.095	0.010	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.035	0.001	-	-

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0007657	B23-Se0007658	B23-Se0007659	B23-Se0007660
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	0.019	< 0.001	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	0.006	< 0.001	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	0.002	< 0.001	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
13C4-PFBA (surr.)	1	%	37	85	-	-
13C5-PFPeA (surr.)	1	%	61	97	-	-
13C5-PFHxA (surr.)	1	%	86	104	-	-
13C4-PFHpA (surr.)	1	%	106	133	-	-
13C8-PFOA (surr.)	1	%	112	135	-	-
13C5-PFNA (surr.)	1	%	136	INT	-	-
13C6-PFDA (surr.)	1	%	^{Q09} 154	121	-	-
13C2-PFUnDA (surr.)	1	%	136	118	-	-
13C2-PFDoDA (surr.)	1	%	112	96	-	-
13C2-PFTeDA (surr.)	1	%	68	25	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
13C8-FOSA (surr.)	1	%	90	81	-	-
D3-N-MeFOSA (surr.)	1	%	44	15	-	-
D5-N-EtFOSA (surr.)	1	%	46	13	-	-
D7-N-MeFOSE (surr.)	1	%	57	31	-	-
D9-N-EtFOSE (surr.)	1	%	60	31	-	-
D5-N-EtFOSAA (surr.)	1	%	156	137	-	-
D3-N-MeFOSAA (surr.)	1	%	152	111	-	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.004	0.004	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	0.003	< 0.001	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	0.002	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	0.004	0.002	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.049	0.009	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	0.004	< 0.001	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.14	0.006	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
13C3-PFBS (surr.)	1	%	104	122	-	-
18O2-PFHxS (surr.)	1	%	101	137	-	-
13C8-PFOS (surr.)	1	%	122	131	-	-

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0007657	B23-Se0007658	B23-Se0007659	B23-Se0007660
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	0.002	< 0.001	-	-
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005	0.35	-	-
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.45	0.004	-	-
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	0.043	< 0.001	-	-
13C2-4:2 FTSA (surr.)	1	%	161	195	-	-
13C2-6:2 FTSA (surr.)	1	%	21	103	-	-
13C2-8:2 FTSA (surr.)	1	%	198	116	-	-
13C2-10:2 FTSA (surr.)	1	%	104	107	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.189	0.015	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.235	0.016	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.284	0.025	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	2.688	2.015	-	-
Sum of PFASs (n=30)*	0.005	ug/L	2.806	2.02	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.159	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.153	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
13C8-FOSA (surr.)	1	%	-	-	54	-
D3-N-MeFOSA (surr.)	1	%	-	-	19	-
D5-N-EtFOSA (surr.)	1	%	-	-	21	-
D7-N-MeFOSE (surr.)	1	%	-	-	38	-
D9-N-EtFOSE (surr.)	1	%	-	-	31	-
D5-N-EtFOSAA (surr.)	1	%	-	-	75	-
D3-N-MeFOSAA (surr.)	1	%	-	-	70	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.14	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	0.013	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Se0007657	B23- Se0007658	B23- Se0007659	B23- Se0007660
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	57	-
13C5-PFPeA (surr.)	1	%	-	-	113	-
13C5-PFHxA (surr.)	1	%	-	-	124	-
13C4-PFHpA (surr.)	1	%	-	-	119	-
13C8-PFOA (surr.)	1	%	-	-	128	-
13C5-PFNA (surr.)	1	%	-	-	118	-
13C6-PFDA (surr.)	1	%	-	-	102	-
13C2-PFUnDA (surr.)	1	%	-	-	80	-
13C2-PFDoDA (surr.)	1	%	-	-	64	-
13C2-PFTeDA (surr.)	1	%	-	-	24	-
Perfluoroalkyl sulfonic acids (PFSA)s - Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.006	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	130	-
18O2-PFHxS (surr.)	1	%	-	-	138	-
13C8-PFOS (surr.)	1	%	-	-	122	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s - Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	147	-
13C2-6:2 FTSA (surr.)	1	%	-	-	125	-
13C2-8:2 FTSA (surr.)	1	%	-	-	115	-
13C2-10:2 FTSA (surr.)	1	%	-	-	118	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Sep 08, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Sep 08, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Sep 08, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Sep 08, 2023	7 Days
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Sep 06, 2023	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: APHA 5210B	Brisbane	Sep 07, 2023	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Sep 07, 2023	28 Days
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Sep 06, 2023	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Sep 06, 2023	28 Days
Total OrganoFluorine* - Method: LTM-ORG-2380 Determination of Total Organofluorine by Combustion Ion Chromatography (CIC)	Brisbane	Sep 08, 2023	28 Day
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Sep 08, 2023	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Sep 08, 2023	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Sep 06, 2023	180 Day
Eurofins Suite B11F: Cl/SO4/Alkalinity/Total F Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Brisbane	Sep 06, 2023	28 Day
Fluoride - Method: LTM-INO-4270 Anions by Ion Chromatography	Melbourne	Sep 06, 2023	28 Days
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Brisbane	Sep 06, 2023	28 Day
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Brisbane	Sep 06, 2023	14 Day
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Sep 07, 2023	28 Days
Nitrate (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Sep 07, 2023	28 Days
Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Sep 07, 2023	2 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Sep 07, 2023	28 Days
Eurofins Suite B19A: Total N (TKN, NOx), Total P Phosphate total (as P) - Method: LTM-INO-4040 Phosphate by CFA	Melbourne	Sep 07, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 08, 2023	28 Days
Perfluoroalkyl sulfonamido substances	Brisbane	Sep 08, 2023	28 Days

Description	Testing Site	Extracted	Holding Time
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Sep 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Sep 08, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Sep 06, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Sep 06, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level Perfluoroalkyl sulfonic acids (PFSAs)- Trace	Brisbane	Sep 06, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Sep 06, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1023058
Phone: 1300 727 527
Fax:

Received: Sep 5, 2023 2:31 PM
Due: Sep 12, 2023
Priority: 5 Day
Contact Name: - ALL INVOICES & STATEMENTS

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total OrganoFluorine*	Total Oxidisable Precursor	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B11E: Cl/SO4/Alkalinity	Eurofins Suite B11F: Cl/SO4/Alkalinity/Total F	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X				X		X		X			
Brisbane Laboratory - NATA # 1261 Site # 20794						X				X	X	X		X	X	X	X	X	X	X
External Laboratory																				
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID															
1	SJ06_UW012	Sep 05, 2023		Water	B23-Se0007657	X	X	X	X	X		X	X	X	X	X	X	X	X	
2	SJ06_PW012	Sep 05, 2023		Water	B23-Se0007658					X		X		X	X			X		
3	SJ06_TW012	Sep 05, 2023		Water	B23-Se0007659					X		X		X	X					X
4	SJ06_DW012	Sep 05, 2023		Water	B23-Se0007660					X		X		X	X					X
5	SJ06_UW012	Sep 05, 2023		TOP - Water	B23-Se0007661						X							X		
6	SJ06_PW012	Sep 05, 2023		TOP - Water	B23-Se0007662						X							X		
7	SJ06_TW012	Sep 05, 2023		TOP - Water	B23-Se0007663						X							X		
8	SJ06_DW012	Sep 05, 2023		TOP - Water	B23-Se0007664						X							X		
Test Counts						1	1	1	1	4	4	4	1	4	4	1	1	6	1	2

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.01			0.01	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Fluoride	mg/L	< 0.5			0.5	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	118			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	107			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	109			70-130	Pass	
Xylenes - Total*	%	110			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	105			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2.4-Trichlorobenzene	%	86			70-130	Pass	
1.4-Dichlorobenzene	%	81			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	115			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	100			70-130	Pass	
Chloride	%	111			70-130	Pass	
Fluoride	%	93			70-130	Pass	
Nitrate & Nitrite (as N)	%	86			70-130	Pass	
Nitrate (as N)	%	86			70-130	Pass	
Nitrite (as N)	%	91			70-130	Pass	
Sulphate (as SO4)	%	104			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	112			70-130	Pass	
Total Organic Carbon	%	98			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	117			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	%	117			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	92			80-120	Pass	
Cadmium	%	91			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	103			80-120	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	89			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	103			80-120	Pass	
Magnesium	%	104			80-120	Pass	
Potassium	%	95			80-120	Pass	
Sodium	%	103			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	87			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	70			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	74			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	79			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	86			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	76			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	66			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	116			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	68			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	%	73			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	72			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	65			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	55			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	62			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	67			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	76			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	72			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	77			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	89			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	77			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	85			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	60			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	83			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	63			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	73			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	72			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	65			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	55			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	62			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	67			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	76			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	87			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	70			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	74			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	79			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	86			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	116			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	76			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	66			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	68			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	76			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	72			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	77			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	89			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	77			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	85			50-150	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanesulfonic acid (PFOS)				%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)				%	60			50-150	Pass	
LCS - % Recovery										
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace										
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)				%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)				%	93			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)				%	83			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)				%	63			50-150	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	B23-Se0005996	NCP	%		86			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	B23-Se0005996	NCP	%		96			70-130	Pass	
Toluene	B23-Se0005996	NCP	%		90			70-130	Pass	
Ethylbenzene	B23-Se0005996	NCP	%		97			70-130	Pass	
m&p-Xylenes	B23-Se0005996	NCP	%		96			70-130	Pass	
o-Xylene	B23-Se0005996	NCP	%		93			70-130	Pass	
Xylenes - Total*	B23-Se0005996	NCP	%		95			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH C6-C10	B23-Se0005996	NCP	%		87			70-130	Pass	
Spike - % Recovery										
Chlorinated Hydrocarbons					Result 1					
1,2,4-Trichlorobenzene	M23-Se0016292	NCP	%		106			70-130	Pass	
1,4-Dichlorobenzene	M23-Se0016292	NCP	%		97			70-130	Pass	
Hexachlorobenzene	L23-Se0003756	NCP	%		78			70-130	Pass	
Spike - % Recovery										
					Result 1					
Chloride	B23-Au0078627	NCP	%		119			70-130	Pass	
Nitrate & Nitrite (as N)	M23-Se0016048	NCP	%		85			70-130	Pass	
Nitrate (as N)	M23-Se0016048	NCP	%		85			70-130	Pass	
Sulphate (as SO4)	B23-Au0078627	NCP	%		101			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M23-Se0026060	NCP	%		75			70-130	Pass	
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCAs)					Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0001138	NCP	%		83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0001138	NCP	%		83			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0001138	NCP	%		84			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0001138	NCP	%		79			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0001138	NCP	%		74			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0001138	NCP	%		76			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0001138	NCP	%		87			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0001138	NCP	%		80			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0001138	NCP	%		92			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0001138	NCP	%		148			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0001138	NCP	%		93			50-150	Pass	
Spike - % Recovery										
Perfluoroalkyl sulfonamido substances					Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	B23-Se0001138	NCP	%	86			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0001138	NCP	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0001138	NCP	%	90			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0001138	NCP	%	78			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0001138	NCP	%	89			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0001138	NCP	%	87			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0001138	NCP	%	80			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0001138	NCP	%	74			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0001138	NCP	%	77			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0001138	NCP	%	65			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0001138	NCP	%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0001138	NCP	%	63			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0001138	NCP	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0001138	NCP	%	86			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0001138	NCP	%	83			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0001138	NCP	%	83			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0001138	NCP	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0001138	NCP	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0001138	NCP	%	98			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B23-Se0007658	CP	%	73			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B23-Se0007658	CP	%	71			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-Se0007659	CP	%	93			75-125	Pass	
Cadmium	B23-Se0007659	CP	%	94			75-125	Pass	
Chromium	B23-Se0007659	CP	%	93			75-125	Pass	
Copper	B23-Se0007659	CP	%	91			75-125	Pass	
Lead	B23-Se0007659	CP	%	92			75-125	Pass	
Nickel	B23-Se0007659	CP	%	86			75-125	Pass	
Zinc	B23-Se0007659	CP	%	83			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1					
Calcium	B23-Se0007659	CP	%	86			75-125	Pass	
Magnesium	B23-Se0007659	CP	%	83			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B23-Se0007660	CP	%	70			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B23-Se0007660	CP	%	70			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Se0012231	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	B23-Se0005998	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	B23-Se0005998	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	B23-Se0005998	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Se0012231	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B23-Se0012231	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Se0012231	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Se0012231	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Se0012231	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Se0012231	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Se0012231	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B23-Se0012231	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	M23-Se0035672	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	M23-Se0035672	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	M23-Se0035672	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Se0005998	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	B23-Se0005998	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	B23-Se0005998	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate								
				Result 1	Result 2	RPD		
Biochemical Oxygen Demand (BOD-5 Day)	B23-Au0073944	NCP	mg/L	< 5	< 5	<1	30%	Pass
Chemical Oxygen Demand (COD)	M23-Se0009505	NCP	mg/L	1100	1200	9.7	30%	Pass
Chloride	B23-Se0002484	NCP	mg/L	370	380	2.6	30%	Pass
Fluoride	B23-Se0008613	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Nitrate & Nitrite (as N)	M23-Se0016050	NCP	mg/L	0.06	0.07	<1	30%	Pass
Nitrate (as N)	M23-Se0016050	NCP	mg/L	0.06	0.06	2.5	30%	Pass
Nitrite (as N)	M23-Se0016050	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Sulphate (as SO ₄)	B23-Se0002484	NCP	mg/L	82	83	23	30%	Pass
Total Kjeldahl Nitrogen (as N)	M23-Se0026059	NCP	mg/L	0.4	0.6	29	30%	Pass
Total Organic Carbon	M22-De0043680	NCP	mg/L	< 5	< 5	<1	30%	Pass
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Se0007491	NCP	mg/L	120	100	13	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	B23-Se0008613	NCP	mg/L	270	270	<1	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	B23-Se0008613	NCP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	B23-Se0008613	NCP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	B23-Se0008613	NCP	mg/L	270	270	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Cadmium	B23-Se0008506	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	B23-Se0008506	NCP	mg/L	0.002	0.002	12	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0005435	NCP	ug/L	0.04	0.04	3.2	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0005435	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)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-Se0005435	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0005435	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B23-Se0007658	CP	mg/L	0.003	0.003	11	30%	Pass
Copper	B23-Se0007658	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead	B23-Se0007658	CP	mg/L	0.002	0.002	9.5	30%	Pass
Nickel	B23-Se0007658	CP	mg/L	0.006	0.004	27	30%	Pass
Zinc	B23-Se0007658	CP	mg/L	0.066	0.051	25	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B23-Se0007658	CP	mg/L	53	48	9.9	30%	Pass
Magnesium	B23-Se0007658	CP	mg/L	24	22	8.8	30%	Pass
Potassium	B23-Se0007658	CP	mg/L	11	9.6	11	30%	Pass
Sodium	B23-Se0007658	CP	mg/L	140	120	11	30%	Pass

Comments

This report has been revised (V2) to remove TOPA samples.

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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Paige Howarth	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Edward Lee	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Data**

Report **1026983-W-V2**

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 05, 2023**

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			TOP - Water	TOP - Water	TOP - Water	TOP - Water
Eurofins Sample No.			B23- Se0007661	B23- Se0007662	B23- Se0007663	B23- Se0007664
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	18	0.54	0.15	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	39	1.5	0.02	0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	9.4	0.69	< 0.01	0.02
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	5.0	0.08	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	0.65	0.02	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	0.52	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	0.09	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	0.04	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	76	52	70	78
13C5-PFPeA (surr.)	1	%	84	72	110	108
13C5-PFHxA (surr.)	1	%	74	76	74	75
13C4-PFHpA (surr.)	1	%	69	73	83	68
13C8-PFOA (surr.)	1	%	74	65	56	58
13C5-PFNA (surr.)	1	%	51	56	61	63
13C6-PFDA (surr.)	1	%	59	61	65	69
13C2-PFUnDA (surr.)	1	%	51	66	64	63
13C2-PFDoDA (surr.)	1	%	50	60	60	56
13C2-PFTeDA (surr.)	1	%	90	91	108	50
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	101	111	103	72
D3-N-MeFOSA (surr.)	1	%	59	41	71	55

Client Sample ID			SJ06_UW012	SJ06_PW012	SJ06_TW012	SJ06_DW012
Sample Matrix			TOP - Water	TOP - Water	TOP - Water	TOP - Water
Eurofins Sample No.			B23- Se0007661	B23- Se0007662	B23- Se0007663	B23- Se0007664
Date Sampled			Sep 05, 2023	Sep 05, 2023	Sep 05, 2023	Sep 05, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	98	60	105	59
D7-N-MeFOSE (surr.)	1	%	52	66	73	68
D9-N-EtFOSE (surr.)	1	%	90	52	51	36
D5-N-EtFOSAA (surr.)	1	%	84	93	83	68
D3-N-MeFOSAA (surr.)	1	%	95	113	115	59
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.01	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	0.07	0.02	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	0.22	0.03	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	89	104	114	115
18O2-PFHxS (surr.)	1	%	76	75	82	101
13C8-PFOS (surr.)	1	%	70	77	79	100
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	65	87	77	98
13C2-6:2 FTSA (surr.)	1	%	77	119	65	71
13C2-8:2 FTSA (surr.)	1	%	62	117	54	60
13C2-10:2 FTSA (surr.)	1	%	63	149	86	76
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	0.29	0.05	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.87	0.05	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.94	0.07	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	72.35	2.88	0.17	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	73.01	2.88	0.17	< 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)	Brisbane	Sep 26, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Sep 26, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Brisbane	Sep 26, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Sep 26, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			



Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1026983
Phone: 1300 727 527
Fax:

Received: Sep 5, 2023 2:31 PM
Due: Sep 25, 2023
Priority: 5 Day
Contact Name: Data

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Total Oxidisable Precursor

Per- and Polyfluoroalkyl Substances (PFASs)

Brisbane Laboratory - NATA # 1261 Site # 20794

X

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	SJ06_UW012	Sep 05, 2023		TOP - Water	B23-Se0007661	X	X
2	SJ06_PW012	Sep 05, 2023		TOP - Water	B23-Se0007662	X	X
3	SJ06_TW012	Sep 05, 2023		TOP - Water	B23-Se0007663	X	X
4	SJ06_DW012	Sep 05, 2023		TOP - Water	B23-Se0007664	X	X

Test Counts

4

4

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
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	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	103			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	112			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	104			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	104			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	61			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	66			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	65			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	96			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	113			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances									
Perfluorooctane sulfonamide (FOSA)			%	69			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	68			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	69			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)			%	62			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)			%	67			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	62			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	68			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)									
Perfluorobutanesulfonic acid (PFBS)			%	98			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	55			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	65			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	65			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	61			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	82			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	58			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	59			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)			%	80			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	54			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)									
				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0006004	NCP	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0006004	NCP	%	85			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0006004	NCP	%	96			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0006004	NCP	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0006004	NCP	%	84			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0006004	NCP	%	91			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0006004	NCP	%	58			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0006004	NCP	%	58			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0006004	NCP	%	58			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0006004	NCP	%	74			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0006004	NCP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances									
				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0006004	NCP	%	76			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0006004	NCP	%	52			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0006004	NCP	%	55			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0006004	NCP	%	59			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0006004	NCP	%	53			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0006004	NCP	%	60			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0006004	NCP	%	67			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0006004	NCP	%	93			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0006004	NCP	%	53			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0006004	NCP	%	78			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0006004	NCP	%	64			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0006004	NCP	%	90			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0006004	NCP	%	59			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0006004	NCP	%	70			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0006004	NCP	%	57			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0006004	NCP	%	59			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0006004	NCP	%	124			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0006004	NCP	%	64			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0006004	NCP	%	62			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0006006	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)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0006006	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0006006	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Comments

This report has been revised (V2) following repeat analysis. PFAS results for Se0007664 have now been replaced by the repeat results.

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:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **1025977-W**

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 14, 2023**

Client Sample ID			SJ06_DW013
Sample Matrix			Water
Eurofins Sample No.			B23- Se0031694
Date Sampled			Sep 14, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	133
D3-N-MeFOSA (surr.)	1	%	105
D5-N-EtFOSA (surr.)	1	%	106
D7-N-MeFOSE (surr.)	1	%	97
D9-N-EtFOSE (surr.)	1	%	99
D5-N-EtFOSAA (surr.)	1	%	119
D3-N-MeFOSAA (surr.)	1	%	105
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJ06_DW013
Sample Matrix			Water
Eurofins Sample No.			B23-Se0031694
Date Sampled			Sep 14, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	89
13C5-PFPeA (surr.)	1	%	124
13C5-PFHxA (surr.)	1	%	82
13C4-PFHpA (surr.)	1	%	96
13C8-PFOA (surr.)	1	%	103
13C5-PFNA (surr.)	1	%	95
13C6-PFDA (surr.)	1	%	83
13C2-PFUnDA (surr.)	1	%	75
13C2-PFDoDA (surr.)	1	%	76
13C2-PFTeDA (surr.)	1	%	95
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	93
18O2-PFHxS (surr.)	1	%	100
13C8-PFOS (surr.)	1	%	99
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	127
13C2-6:2 FTSA (surr.)	1	%	113
13C2-8:2 FTSA (surr.)	1	%	91
13C2-10:2 FTSA (surr.)	1	%	107

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Sep 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Sep 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Sep 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Sep 14, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1025977
Phone: 1300 727 527
Fax:

Received: Sep 14, 2023 12:05 PM
Due: Sep 15, 2023
Priority: 1 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJ06_DW013	Sep 14, 2023		Water	B23-Se0031694	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	91			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	88			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	84			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	85			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	86			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	81			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	75			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	82			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	87			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	68			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	82			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	78			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	83			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	110			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	80			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	79			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	85			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)s- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	73			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	75			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	71			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	77			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	84			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	81			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	63			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	81			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	81			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	87			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	70			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0031694	CP	%	77			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0031694	CP	%	76			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0031694	CP	%	67			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0031694	CP	%	66			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0031694	CP	%	72			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0031694	CP	%	66			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0031694	CP	%	61			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)s - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0031694	CP	%	86			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0031694	CP	%	87			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0031694	CP	%	78			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0031694	CP	%	83			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0031694	CP	%	91			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0031694	CP	%	83			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0031694	CP	%	76			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0031694	CP	%	83			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0031694	CP	%	81			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-Se0031694	CP	%	60			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0031694	CP	%	73			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0031694	CP	%	72			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0031694	CP	%	64			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0031694	CP	%	69			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0031694	CP	%	79			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0031694	CP	%	78			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0031694	CP	%	79			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0031694	CP	%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0031694	CP	%	51			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0031694	CP	%	74			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0031694	CP	%	72			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0031694	CP	%	67			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0028025	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Se0028025	NCP	ug/L	0.011	0.011	6.2	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0028025	NCP	ug/L	0.003	0.003	13	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0028025	NCP	ug/L	0.004	0.004	1.1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0028025	NCP	ug/L	0.001	0.001	1.5	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0028025	NCP	ug/L	0.003	0.002	7.2	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorotridecanoic acid (PFTrDA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0028025	NCP	ug/L	0.002	0.002	15	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0028025	NCP	ug/L	0.005	0.005	5.0	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0028025	NCP	ug/L	0.013	0.013	1.3	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0028025	NCP	ug/L	< 0.001	< 0.001	<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	N/A
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:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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Accreditation Number 1261
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 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: **Andrew Reardon**

Report **1025975-W**
 Project name **SJ06**
 Project ID **SJ06**
 Received Date **Sep 14, 2023**

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_QC013	SJ06_TW013
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Se0031688	B23- Se0031689	B23- Se0031690	B23- Se0031691
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	0.04	0.03	-	< 0.01
TRH C10-C14	0.05	mg/L	0.64	0.13	-	< 0.05
TRH C15-C28	0.1	mg/L	1.1	0.3	-	0.1
TRH C29-C36	0.1	mg/L	0.4	0.2	-	0.2
TRH C10-C36 (Total)	0.1	mg/L	2.14	0.63	-	0.3
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	-	< 0.001
Toluene	0.001	mg/L	0.005	< 0.001	-	< 0.001
Ethylbenzene	0.001	mg/L	0.001	< 0.001	-	< 0.001
m&p-Xylenes	0.002	mg/L	0.006	< 0.002	-	< 0.002
o-Xylene	0.001	mg/L	0.004	< 0.001	-	< 0.001
Xylenes - Total*	0.003	mg/L	0.010	< 0.003	-	< 0.003
4-Bromofluorobenzene (surr.)	1	%	109	110	-	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	-	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.56	0.11	-	0.05
TRH C6-C10	0.01	mg/L	0.06	0.02	-	< 0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	0.04	0.02	-	< 0.01
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.56	0.11	-	0.05
TRH >C16-C34	0.1	mg/L	1.4	0.4	-	0.2
TRH >C34-C40	0.1	mg/L	0.3	0.2	-	0.3
TRH >C10-C40 (total)*	0.1	mg/L	2.26	0.71	-	0.55
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	90	95	-	22
Heavy Metals						
Arsenic	0.001	mg/L	0.010	0.004	-	< 0.001
Cadmium	0.0002	mg/L	0.0006	< 0.0002	-	< 0.0002
Chromium	0.001	mg/L	0.008	< 0.001	-	0.003
Copper	0.001	mg/L	0.024	0.001	-	< 0.001
Lead	0.001	mg/L	0.053	0.002	-	< 0.001
Nickel	0.001	mg/L	0.018	0.011	-	0.092
Zinc	0.005	mg/L	0.25	0.024	-	< 0.005

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_QC013	SJ06_TW013
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0031688	B23-Se0031689	B23-Se0031690	B23-Se0031691
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.023	0.045	0.045	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.093	0.086	0.091	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.35	0.12	0.14	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.11	0.017	0.019	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	^{N09} 0.19	^{N09} 0.014	^{N09} 0.014	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.023	< 0.001	0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	< 0.001	0.002	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001	-
13C4-PFBA (surr.)	1	%	^{Q09} 39	128	122	-
13C5-PFPeA (surr.)	1	%	61	^{Q09} 175	^{Q09} 157	-
13C5-PFHxA (surr.)	1	%	^{Q09} 49	132	108	-
13C4-PFHpA (surr.)	1	%	53	148	135	-
13C8-PFOA (surr.)	1	%	56	138	128	-
13C5-PFNA (surr.)	1	%	56	125	118	-
13C6-PFDA (surr.)	1	%	69	153	143	-
13C2-PFUnDA (surr.)	1	%	47	170	151	-
13C2-PFDoDA (surr.)	1	%	47	110	83	-
13C2-PFTeDA (surr.)	1	%	66	20	INT	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	0.005	0.004	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002	0.008	0.007	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	0.006	0.005	0.004	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	< 0.002	-
13C8-FOSA (surr.)	1	%	106	33	11	-
D3-N-MeFOSA (surr.)	1	%	32	84	25	-
D5-N-EtFOSA (surr.)	1	%	61	79	41	-
D7-N-MeFOSE (surr.)	1	%	58	81	54	-
D9-N-EtFOSE (surr.)	1	%	42	57	38	-
D5-N-EtFOSAA (surr.)	1	%	88	101	64	-
D3-N-MeFOSAA (surr.)	1	%	100	107	69	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.077	0.032	0.033	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	0.005	0.006	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	0.012	0.016	0.017	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	0.034	0.010	0.010	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.61	^{N09} 0.093	^{N09} 0.086	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	^{N09} 0.027	0.001	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 1.3	0.034	0.039	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	< 0.001	-

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_QC013	SJ06_TW013
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0031688	B23-Se0031689	B23-Se0031690	B23-Se0031691
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFASs)						
13C3-PFBS (surr.)	1	%	89	84	81	-
18O2-PFHxS (surr.)	1	%	95	94	99	-
13C8-PFOS (surr.)	1	%	115	82	78	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	0.003	< 0.001	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	0.76	0.045	0.057	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.046	0.002	0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	123	INT	INT	-
13C2-6:2 FTSA (surr.)	1	%	149	129	106	-
13C2-8:2 FTSA (surr.)	1	%	127	77	95	-
13C2-10:2 FTSA (surr.)	1	%	98	117	106	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	1.91	0.127	0.125	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	1.49	0.048	0.053	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	2.1	0.141	0.139	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	3.559	0.488	0.525	-
Sum of PFASs (n=30)*	0.005	ug/L	3.669	0.539	0.57	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	-	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	-	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	-	-	-	0.129
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	-	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	-	0.126
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	-	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	-	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	-	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	-	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	-	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	-	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	-	< 0.002
13C8-FOSA (surr.)	1	%	-	-	-	92
D3-N-MeFOSA (surr.)	1	%	-	-	-	INT
D5-N-EtFOSA (surr.)	1	%	-	-	-	13
D7-N-MeFOSE (surr.)	1	%	-	-	-	38
D9-N-EtFOSE (surr.)	1	%	-	-	-	31
D5-N-EtFOSAA (surr.)	1	%	-	-	-	77
D3-N-MeFOSAA (surr.)	1	%	-	-	-	51

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_QC013	SJ06_TW013
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0031688	B23-Se0031689	B23-Se0031690	B23-Se0031691
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	-	0.10
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	-	0.026
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	-	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
13C4-PFBA (surr.)	1	%	-	-	-	53
13C5-PFPeA (surr.)	1	%	-	-	-	41
13C5-PFHxA (surr.)	1	%	-	-	-	97
13C4-PFHpA (surr.)	1	%	-	-	-	106
13C8-PFOA (surr.)	1	%	-	-	-	76
13C5-PFNA (surr.)	1	%	-	-	-	90
13C6-PFDA (surr.)	1	%	-	-	-	107
13C2-PFUnDA (surr.)	1	%	-	-	-	73
13C2-PFDoDA (surr.)	1	%	-	-	-	65
13C2-PFTeDA (surr.)	1	%	-	-	-	38
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	-	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	-	0.003
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	-	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	-	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	-	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	-	< 0.001
13C3-PFBS (surr.)	1	%	-	-	-	128
18O2-PFHxS (surr.)	1	%	-	-	-	112
13C8-PFOS (surr.)	1	%	-	-	-	118
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	-	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	-	< 0.001
13C2-4:2 FTSA (surr.)	1	%	-	-	-	58
13C2-6:2 FTSA (surr.)	1	%	-	-	-	79
13C2-8:2 FTSA (surr.)	1	%	-	-	-	79
13C2-10:2 FTSA (surr.)	1	%	-	-	-	41

Client Sample ID			SJ06_DW013
Sample Matrix			Water
Eurofins Sample No.			B23- Se0031692
Date Sampled			Sep 14, 2023
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.01	mg/L	< 0.01
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.01	mg/L	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05
TRH C6-C10	0.01	mg/L	< 0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	< 0.01
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	20
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.003
Copper	0.001	mg/L	0.001
Lead	0.001	mg/L	< 0.001
Nickel	0.001	mg/L	0.25
Zinc	0.005	mg/L	< 0.005

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Sep 15, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Sep 15, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Sep 15, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Sep 15, 2023	7 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Sep 15, 2023	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Sep 15, 2023	180 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Sep 15, 2023	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Sep 15, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Sep 15, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Sep 15, 2023	28 Days

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1025975
Phone: 1300 727 527
Fax:

Received: Sep 14, 2023 12:05 PM
Due: Sep 21, 2023
Priority: 5 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Total Suspended Solids Dried at 103 °C to 105 °C	Metals M7	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X		
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X
External Laboratory										
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
1	SJ06_UW013	Sep 14, 2023		Water	B23-Se0031688	X	X	X	X	
2	SJ06_PW013	Sep 14, 2023		Water	B23-Se0031689	X	X	X	X	
3	SJ06_QC013	Sep 14, 2023		Water	B23-Se0031690				X	
4	SJ06_TW013	Sep 14, 2023		Water	B23-Se0031691	X	X	X		X
5	SJ06_DW013	Sep 14, 2023		Water	B23-Se0031692	X	X	X		
Test Counts						4	4	4	3	1

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/L	0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	73			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	103			70-130	Pass	
Ethylbenzene	%	111			70-130	Pass	
m&p-Xylenes	%	112			70-130	Pass	
Xylenes - Total*	%	112			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	103			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	72			70-130	Pass	
LCS - % Recovery							
Total Suspended Solids Dried at 103 °C to 105 °C	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	102			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	108			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	109			80-120	Pass	
Nickel	%	106			80-120	Pass	
Zinc	%	103			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	108			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	99			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	135			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	108			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	110			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	109			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	95			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	65			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	113			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	100			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	95			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	95			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	86			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	95			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	112			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	102			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	104			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	74			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	125			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	101			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	82			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	134			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	96			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	86			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	105			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	68			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	70			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	97			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	105			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	106			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	100			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	94			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	116			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	90			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	83			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	139			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	103			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	127			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	90			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	108			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	71			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	112			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	85			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	102			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	77			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	131			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	99			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C10-C14	B23-Se0032906	NCP	%	79		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	B23-Se0032906	NCP	%	77		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	B23-Se0029726	NCP	%	119		75-125	Pass	
Cadmium	B23-Se0029726	NCP	%	115		75-125	Pass	
Chromium	B23-Se0029726	NCP	%	104		75-125	Pass	
Copper	B23-Se0029726	NCP	%	95		75-125	Pass	
Lead	B23-Se0029726	NCP	%	101		75-125	Pass	
Nickel	B23-Se0029726	NCP	%	97		75-125	Pass	
Zinc	B23-Se0029726	NCP	%	96		75-125	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	B23-Se0019192	NCP	%	111		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0019192	NCP	%	103		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0019192	NCP	%	130		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0019192	NCP	%	81		50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0019192	NCP	%	97		50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0019192	NCP	%	137		50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0019192	NCP	%	90		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0019192	NCP	%	126		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0019192	NCP	%	93		50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	B23-Se0019192	NCP	%	58		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0019192	NCP	%	141		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	B23-Se0019192	NCP	%	73		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0019192	NCP	%	136		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0019192	NCP	%	87		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0019192	NCP	%	115		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0019192	NCP	%	121		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0019192	NCP	%	89		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0019192	NCP	%	106		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1				
Perfluorobutanesulfonic acid (PFBS)	B23-Se0019192	NCP	%	118		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0019192	NCP	%	57		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0019192	NCP	%	69		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0019192	NCP	%	68		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0019192	NCP	%	94			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0019192	NCP	%	64			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0019192	NCP	%	72			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0019192	NCP	%	65			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0019192	NCP	%	149			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-Se0019192	NCP	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0019192	NCP	%	65			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0019192	NCP	%	71			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	B23-Se0031689	CP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B23-Se0031689	CP	%	102			70-130	Pass	
Toluene	B23-Se0031689	CP	%	105			70-130	Pass	
Ethylbenzene	B23-Se0031689	CP	%	111			70-130	Pass	
m&p-Xylenes	B23-Se0031689	CP	%	111			70-130	Pass	
o-Xylene	B23-Se0031689	CP	%	108			70-130	Pass	
Xylenes - Total*	B23-Se0031689	CP	%	110			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	B23-Se0031689	CP	%	99			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	S23-Se0025869	NCP	%	66			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Se0025869	NCP	%	121			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Se0025869	NCP	%	72			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Se0025869	NCP	%	125			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Se0025869	NCP	%	97			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Se0025869	NCP	%	78			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Se0025869	NCP	%	87			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	S23-Se0025869	NCP	%	113			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S23-Se0025869	NCP	%	91			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S23-Se0025869	NCP	%	132			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S23-Se0025869	NCP	%	93			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S23-Se0025869	NCP	%	110			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorononanoic acid (PFNA)	S23-Se0025869	NCP	%	109			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S23-Se0025869	NCP	%	63			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S23-Se0025869	NCP	%	145			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S23-Se0025869	NCP	%	91			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S23-Se0025869	NCP	%	90			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S23-Se0025869	NCP	%	137			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S23-Se0025869	NCP	%	94			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S23-Se0025869	NCP	%	83			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S23-Se0025869	NCP	%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S23-Se0025869	NCP	%	62			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S23-Se0025869	NCP	%	113			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S23-Se0025869	NCP	%	67			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S23-Se0025869	NCP	%	104			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S23-Se0025869	NCP	%	59			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Se0025869	NCP	%	130			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S23-Se0025869	NCP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Se0025869	NCP	%	71			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Se0025869	NCP	%	78			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Se0026504	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	B23-Se0030702	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	B23-Se0030702	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	B23-Se0030702	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Se0026504	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B23-Se0026504	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Se0026504	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Se0026504	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Se0026504	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Se0026504	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Se0026504	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B23-Se0026504	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B23-Se0030702	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	B23-Se0030702	NCP	mg/L	0.1	< 0.1	15	30%	Pass
TRH >C34-C40	B23-Se0030702	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Se0029726	NCP	mg/L	12	14	15	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Se0031688	CP	ug/L	0.023	0.028	19	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Se0031688	CP	ug/L	0.093	0.092	1.3	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Se0031688	CP	ug/L	0.35	0.33	3.8	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Se0031688	CP	ug/L	0.11	0.12	5.2	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Se0031688	CP	ug/L	0.19	0.21	11	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Se0031688	CP	ug/L	0.023	0.025	9.8	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Se0031688	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0031688	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0031688	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0031688	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0031688	CP	ug/L	0.006	0.007	20	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0031688	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0031688	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0031688	CP	ug/L	0.077	0.086	11	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0031688	CP	ug/L	0.005	0.004	17	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0031688	CP	ug/L	0.012	0.010	11	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0031688	CP	ug/L	0.034	0.031	8.5	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0031688	CP	ug/L	0.61	0.58	5.4	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0031688	CP	ug/L	0.027	0.028	4.4	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0031688	CP	ug/L	1.3	1.3	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<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)	B23-Se0031688	CP	ug/L	0.003	0.003	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0031688	CP	ug/L	0.76	0.86	12	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0031688	CP	ug/L	0.046	0.056	19	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0031688	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B23-Se0031691	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium	B23-Se0031691	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	B23-Se0031691	CP	mg/L	0.003	0.003	5.6	30%	Pass
Copper	B23-Se0031691	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead	B23-Se0031691	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Nickel	B23-Se0031691	CP	mg/L	0.092	0.096	4.1	30%	Pass
Zinc	B23-Se0031691	CP	mg/L	< 0.005	< 0.005	<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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Zoe Flynn	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Volatile
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Sarah McCallion	Senior Analyst-Organic



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **1025980-W**

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 14, 2023**

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Se0031782	B23- Se0031783	B23- Se0031784	B23- Se0031785
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Adsorbable Organofluorine (AOF)*	0.05	mg F/L	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013
Sample Matrix			TOP - Water	TOP - Water	TOP - Water	TOP - Water
Eurofins Sample No.			B23- Se0031786	B23- Se0031787	B23- Se0031788	B23- Se0031789
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	1.6	0.09	0.10	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	3.7	0.16	0.03	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	1.1	0.13	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	0.30	0.03	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.13	^{N09} 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	0.03	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	^{Q09} 46	67	109	119
13C5-PFPeA (surr.)	1	%	91	140	145	142
13C5-PFHxA (surr.)	1	%	125	144	134	118
13C4-PFHpA (surr.)	1	%	116	132	103	115
13C8-PFOA (surr.)	1	%	117	124	74	87
13C5-PFNA (surr.)	1	%	103	108	56	81
13C6-PFDA (surr.)	1	%	113	112	54	86
13C2-PFUnDA (surr.)	1	%	104	132	51	88
13C2-PFDoDA (surr.)	1	%	93	134	46	73
13C2-PFTeDA (surr.)	1	%	91	109	46	64

Client Sample ID			SJ06_UW013	SJ06_PW013	SJ06_TW013	SJ06_DW013
Sample Matrix			TOP - Water	TOP - Water	TOP - Water	TOP - Water
Eurofins Sample No.			B23- Se0031786	B23- Se0031787	B23- Se0031788	B23- Se0031789
Date Sampled			Sep 14, 2023	Sep 14, 2023	Sep 14, 2023	Sep 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	84	95	44	58
D3-N-MeFOSA (surr.)	1	%	81	75	38	54
D5-N-EtFOSA (surr.)	1	%	102	90	50	74
D7-N-MeFOSE (surr.)	1	%	75	80	41	53
D9-N-EtFOSE (surr.)	1	%	63	66	35	48
D5-N-EtFOSAA (surr.)	1	%	81	103	43	74
D3-N-MeFOSAA (surr.)	1	%	79	98	57	74
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.07	0.03	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	^{N09} 0.05	^{N09} 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	^{N09} 0.68	^{N09} 0.07	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	^{N09} 0.05	^{N09} < 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 1.5	^{N09} 0.04	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	145	140	130	124
18O2-PFHxS (surr.)	1	%	118	136	92	113
13C8-PFOS (surr.)	1	%	102	132	57	80
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	INT	39	63	125
13C2-6:2 FTSA (surr.)	1	%	119	132	67	88
13C2-8:2 FTSA (surr.)	1	%	124	52	60	92
13C2-10:2 FTSA (surr.)	1	%	111	101	44	67
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	2.18	0.11	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	1.63	0.05	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	2.31	0.12	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	9.08	0.56	0.13	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	9.21	0.57	0.13	< 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
Adsorbable Organofluorine (AOF)* - Method: LTM-ORG-2380 Determination of Total Organofluorine by Combustion Ion Chromatography (CIC)	Brisbane	Sep 15, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Sep 15, 2023	28 Days



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261
Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
Tel: +61 3 8564 5000
NATA# 1261
Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261
Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
Tel: +61 2 6113 8091
NATA# 1261
Site# 25466

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
Tel: +61 7 3902 4600
NATA# 1261
Site# 20794

Newcastle
1/2 Frost Drive
Mayfield West NSW 2304
Tel: +61 2 4968 8448
NATA# 1261
Site# 25079 & 25289

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Auckland
35 O'Rorke Road
Penrose,
Auckland 1061
Tel: +64 9 526 4551
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: +64 3 343 5201
IANZ# 1290

Tauranga
1277 Cameron Road,
Gate Pa,
Tauranga 3112
Tel: +64 9 525 0568
IANZ# 1402

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1025980
Phone: 1300 727 527
Fax:

Received: Sep 14, 2023 12:05 PM
Due: Sep 21, 2023
Priority: 5 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Adsorbable Organofluorine (AOF)*

Total Oxidisable Precursor

Per- and Polyfluoroalkyl Substances (PFASs)

Brisbane Laboratory - NATA # 1261 Site # 20794

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SJ06_UW013	Sep 14, 2023		Water	B23-Se0031782	X		
2	SJ06_PW013	Sep 14, 2023		Water	B23-Se0031783	X		
3	SJ06_TW013	Sep 14, 2023		Water	B23-Se0031784	X		
4	SJ06_DW013	Sep 14, 2023		Water	B23-Se0031785	X		
5	SJ06_UW013	Sep 14, 2023		TOP - Water	B23-Se0031786		X	X
6	SJ06_PW013	Sep 14, 2023		TOP - Water	B23-Se0031787		X	X
7	SJ06_TW013	Sep 14, 2023		TOP - Water	B23-Se0031788		X	X
8	SJ06_DW013	Sep 14, 2023		TOP - Water	B23-Se0031789		X	X

Test Counts

4 4 4

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Adsorbable Organofluorine (AOF)*	mg F/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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 (PFTriDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
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	
LCS - % Recovery							
Adsorbable Organofluorine (AOF)*	%	100			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	96			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	101			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	101			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	89			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	75			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroundecanoic acid (PFUnDA)			%	80			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	54			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	61			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	67			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances									
Perfluorooctane sulfonamide (FOSA)			%	59			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	59			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	53			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)			%	54			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)			%	55			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	54			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	69			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)									
Perfluorobutanesulfonic acid (PFBS)			%	98			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	70			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	97			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	116			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	86			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	94			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	50			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	92			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	78			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	50			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Adsorbable Organofluorine (AOF)*	B23-Se0031785	CP	%	106			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0031787	CP	%	77			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0031787	CP	%	101			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0031787	CP	%	104			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0031787	CP	%	89			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0031787	CP	%	102			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0031787	CP	%	102			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0031787	CP	%	89			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0031787	CP	%	74			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0031787	CP	%	75			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0031787	CP	%	86			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0031787	CP	%	71			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0031787	CP	%	99			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0031787	CP	%	78			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0031787	CP	%	73			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0031787	CP	%	53			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0031787	CP	%	61			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0031787	CP	%	84			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0031787	CP	%	86			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0031787	CP	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0031787	CP	%	79			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0031787	CP	%	54			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0031787	CP	%	112			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0031787	CP	%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0031787	CP	%	89			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0031787	CP	%	101			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0031787	CP	%	57			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0031787	CP	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0031787	CP	%	121			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0031787	CP	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0031787	CP	%	63			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Adsorbable Organofluorine (AOF)*	B23-Se0031782	CP	mg F/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Se0031786	CP	ug/L	1.6	1.4	12	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0031786	CP	ug/L	3.7	3.5	4.8	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0031786	CP	ug/L	1.1	1.2	1.8	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0031786	CP	ug/L	0.30	0.33	9.1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0031786	CP	ug/L	0.13	0.15	11	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0031786	CP	ug/L	0.03	0.03	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorododecanoic acid (PFDoDA)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0031786	CP	ug/L	0.07	0.07	6.9	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0031786	CP	ug/L	0.05	0.05	2.1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0031786	CP	ug/L	0.68	0.62	8.8	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0031786	CP	ug/L	0.05	0.05	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0031786	CP	ug/L	1.5	1.4	6.0	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0031786	CP	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)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0031786	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0031786	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0031786	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	N/A
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Zoe Flynn	Analytical Services Manager
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **1029878-W**

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 27, 2023**

Client Sample ID			SJ06_DW014
Sample Matrix			Water
Eurofins Sample No.			B23- Se0064589
Date Sampled			Sep 27, 2023
Test/Reference	LOR	Unit	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	< 0.005
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	< 0.002
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002
13C8-FOSA (surr.)	1	%	67
D3-N-MeFOSA (surr.)	1	%	96
D5-N-EtFOSA (surr.)	1	%	59
D7-N-MeFOSE (surr.)	1	%	96
D9-N-EtFOSE (surr.)	1	%	96
D5-N-EtFOSAA (surr.)	1	%	78
D3-N-MeFOSAA (surr.)	1	%	58
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001

Client Sample ID			SJ06_DW014
Sample Matrix			Water
Eurofins Sample No.			B23-Se0064589
Date Sampled			Sep 27, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	84
13C5-PFPeA (surr.)	1	%	62
13C5-PFHxA (surr.)	1	%	59
13C4-PFHpA (surr.)	1	%	61
13C8-PFOA (surr.)	1	%	96
13C5-PFNA (surr.)	1	%	96
13C6-PFDA (surr.)	1	%	56
13C2-PFUnDA (surr.)	1	%	58
13C2-PFDoDA (surr.)	1	%	41
13C2-PFTeDA (surr.)	1	%	96
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001
13C3-PFBS (surr.)	1	%	108
18O2-PFHxS (surr.)	1	%	83
13C8-PFOS (surr.)	1	%	96
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	< 0.001
13C2-4:2 FTSA (surr.)	1	%	41
13C2-6:2 FTSA (surr.)	1	%	77
13C2-8:2 FTSA (surr.)	1	%	49
13C2-10:2 FTSA (surr.)	1	%	63

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) - Trace			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Sep 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Sep 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
Perfluoroalkyl sulfonic acids (PFSA)- Trace	Brisbane	Sep 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Sep 27, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level			



Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1029878
Phone: 1300 727 527
Fax:

Received: Sep 27, 2023 6:30 PM
Due: Sep 29, 2023
Priority: 1 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail

Per- and Polyfluoroalkyl Substances (PFASs)
- Trace

Brisbane Laboratory - NATA # 1261 Site # 20794

X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SJ06_DW014	Sep 27, 2023		Water	B23-Se0064589	X

Test Counts

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

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

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	117			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	62			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	101			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	52			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	65			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	105			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	115			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	124			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	116			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanoic acid (PFHxA)			%	141			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)			%	131			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	103			50-150	Pass	
Perfluorononanoic acid (PFNA)			%	124			50-150	Pass	
Perfluorodecanoic acid (PFDA)			%	135			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)			%	74			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)			%	111			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)			%	111			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)			%	76			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace									
Perfluorobutanesulfonic acid (PFBS)			%	99			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	119			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	140			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	90			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	142			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	83			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	121			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	88			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	135			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	149			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)			%	85			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0063070	NCP	%	94			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0063070	NCP	%	50			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0063070	NCP	%	92			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0063070	NCP	%	72			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0063070	NCP	%	52			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0063070	NCP	%	98			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0063070	NCP	%	118			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCA)- Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0063070	NCP	%	121			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0063070	NCP	%	91			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0063070	NCP	%	115			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0063070	NCP	%	136			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0063070	NCP	%	56			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0063070	NCP	%	84			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0063070	NCP	%	91			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0063070	NCP	%	63			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0063070	NCP	%	120			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorododecanoic acid (PFDoDA)	B23-Se0063070	NCP	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0063070	NCP	%	72			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0063070	NCP	%	103			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0063070	NCP	%	63			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0063070	NCP	%	52			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0063070	NCP	%	54			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0063070	NCP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0063070	NCP	%	71			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0063070	NCP	%	131			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0063070	NCP	%	84			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0063070	NCP	%	124			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-Se0063070	NCP	%	122			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0063070	NCP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0063070	NCP	%	82			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0063070	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-Se0063070	NCP	ug/L	0.16	0.14	15	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0063070	NCP	ug/L	0.058	0.067	15	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0063070	NCP	ug/L	0.15	0.14	2.3	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0063070	NCP	ug/L	0.13	0.15	11	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0063070	NCP	ug/L	0.015	0.014	13	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorodecanoic acid (PFDA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0063070	NCP	ug/L	0.019	0.020	1.8	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0063070	NCP	ug/L	0.007	0.006	16	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0063070	NCP	ug/L	0.075	0.074	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0063070	NCP	ug/L	0.046	0.047	3.2	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0063070	NCP	ug/L	0.005	0.006	5.8	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0063070	NCP	ug/L	< 0.001	< 0.001	<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
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:

Zoe Flynn Analytical Services Manager
 Sarah McCallion Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Andrew Reardon**

Report **1029894-W-V2**

Project name **SJ06**

Project ID **SJ06**

Received Date **Sep 27, 2023**

Client Sample ID			SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Se0064862	B23- Se0064863	B23- Se0064864	B23- Se0064865
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C10-C14	0.05	mg/L	0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.15	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	105	93	90	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.09	< 0.05	< 0.05	< 0.05
TRH C6-C10	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10 less BTEX (F1) ^{N04}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0064862	B23-Se0064863	B23-Se0064864	B23-Se0064865
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	79	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.09	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	48	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	30	-	-	-
Chloride	1	mg/L	270	-	-	-
Dissolved Organic Carbon	5	mg/L	12	-	-	-
Nitrate & Nitrite (as N)	0.05	mg/L	0.17	-	-	-
Nitrate (as N)	0.02	mg/L	0.04	-	-	-
Nitrite (as N)	0.02	mg/L	0.13	-	-	-
Phosphate total (as P)	0.01	mg/L	0.10	-	-	-
Sulphate (as SO4)	5	mg/L	140	-	-	-
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	4.1	-	-	-
Total Nitrogen (as N)*	0.2	mg/L	4.3	-	-	-
Total Organic Carbon	5	mg/L	14	-	-	-
Total OrganoFluorine*	5	mg/L	< 5	< 5	120	110
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	610	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	180	-	-	-
Carbonate Alkalinity (as CaCO3)	20	mg/L	< 20	-	-	-
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	-	-	-
Total Alkalinity (as CaCO3)	20	mg/L	180	-	-	-
Heavy Metals						
Arsenic	0.001	mg/L	0.019	-	-	-
Cadmium	0.0002	mg/L	0.0003	-	-	-
Chromium	0.001	mg/L	0.017	-	-	-
Copper	0.001	mg/L	0.025	-	-	-
Lead	0.001	mg/L	0.026	-	-	-
Nickel	0.001	mg/L	0.018	-	-	-
Zinc	0.005	mg/L	0.32	-	-	-
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	71	-	-	-
Magnesium	0.5	mg/L	35	-	-	-
Potassium	0.5	mg/L	12	-	-	-
Sodium	0.5	mg/L	190	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.048	0.28	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.14	0.30	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.17	0.64	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.040	0.012	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	0.031	0.010	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.008	0.006	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	0.002	< 0.001	-	-

Client Sample ID			SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0064862	B23-Se0064863	B23-Se0064864	B23-Se0064865
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001	0.001	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	0.013	0.001	-	-
13C4-PFBA (surr.)	1	%	103	103	-	-
13C5-PFPeA (surr.)	1	%	118	108	-	-
13C5-PFHxA (surr.)	1	%	74	120	-	-
13C4-PFHpA (surr.)	1	%	76	109	-	-
13C8-PFOA (surr.)	1	%	105	150	-	-
13C5-PFNA (surr.)	1	%	129	142	-	-
13C6-PFDA (surr.)	1	%	134	144	-	-
13C2-PFUnDA (surr.)	1	%	154	132	-	-
13C2-PFDoDA (surr.)	1	%	125	130	-	-
13C2-PFTeDA (surr.)	1	%	125	105	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	0.004	< 0.002	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	< 0.002	< 0.002	-	-
13C8-FOSA (surr.)	1	%	75	INT	-	-
D3-N-MeFOSA (surr.)	1	%	57	INT	-	-
D5-N-EtFOSA (surr.)	1	%	84	INT	-	-
D7-N-MeFOSE (surr.)	1	%	25	INT	-	-
D9-N-EtFOSE (surr.)	1	%	24	INT	-	-
D5-N-EtFOSAA (surr.)	1	%	157	127	-	-
D3-N-MeFOSAA (surr.)	1	%	139	114	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.015	0.009	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	< 0.001	0.002	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	0.008	< 0.001	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.10	0.008	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	0.009	< 0.001	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.27	0.008	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	< 0.001	-	-
13C3-PFBS (surr.)	1	%	103	138	-	-
18O2-PFHxS (surr.)	1	%	98	125	-	-
13C8-PFOS (surr.)	1	%	116	130	-	-

Client Sample ID			SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-Se0064862	B23-Se0064863	B23-Se0064864	B23-Se0064865
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	0.001	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	1.4	0.24	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.12	0.001	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	0.010	< 0.001	-	-
13C2-4:2 FTSA (surr.)	1	%	39	39	-	-
13C2-6:2 FTSA (surr.)	1	%	51	Q0941	-	-
13C2-8:2 FTSA (surr.)	1	%	94	76	-	-
13C2-10:2 FTSA (surr.)	1	%	115	72	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.37	0.016	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.301	0.018	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.401	0.026	-	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	2.334	1.508	-	-
Sum of PFASs (n=30)*	0.005	ug/L	2.388	1.519	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.11	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	-
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.108	-
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.002	ug/L	-	-	< 0.002	-
13C8-FOSA (surr.)	1	%	-	-	27	-
D3-N-MeFOSA (surr.)	1	%	-	-	18	-
D5-N-EtFOSA (surr.)	1	%	-	-	12	-
D7-N-MeFOSE (surr.)	1	%	-	-	27	-
D9-N-EtFOSE (surr.)	1	%	-	-	25	-
D5-N-EtFOSAA (surr.)	1	%	-	-	52	-
D3-N-MeFOSAA (surr.)	1	%	-	-	75	-
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.096	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	0.012	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	-

Client Sample ID			SJ06_UW014	SJ06_PW014	SJ06_TW014	SJ06_DW014
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- Se0064862	B23- Se0064863	B23- Se0064864	B23- Se0064865
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C4-PFBA (surr.)	1	%	-	-	65	-
13C5-PFPeA (surr.)	1	%	-	-	87	-
13C5-PFHxA (surr.)	1	%	-	-	122	-
13C4-PFHpA (surr.)	1	%	-	-	114	-
13C8-PFOA (surr.)	1	%	-	-	121	-
13C5-PFNA (surr.)	1	%	-	-	81	-
13C6-PFDA (surr.)	1	%	-	-	80	-
13C2-PFUnDA (surr.)	1	%	-	-	84	-
13C2-PFDoDA (surr.)	1	%	-	-	48	-
13C2-PFTeDA (surr.)	1	%	-	-	24	-
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.002	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	-
13C3-PFBS (surr.)	1	%	-	-	125	-
18O2-PFHxS (surr.)	1	%	-	-	110	-
13C8-PFOS (surr.)	1	%	-	-	84	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	-	-	INT	-
13C2-6:2 FTSA (surr.)	1	%	-	-	75	-
13C2-8:2 FTSA (surr.)	1	%	-	-	53	-
13C2-10:2 FTSA (surr.)	1	%	-	-	17	-

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Nov 08, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Nov 08, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Nov 08, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Nov 08, 2023	7 Days
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Oct 02, 2023	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: APHA 5210B	Brisbane	Oct 03, 2023	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Oct 02, 2023	28 Days
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Oct 02, 2023	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Oct 02, 2023	28 Days
Total OrganoFluorine* - Method: LTM-ORG-2380 Determination of Total Organofluorine by Combustion Ion Chromatography (CIC)	Brisbane	Oct 03, 2023	28 Day
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Oct 03, 2023	7 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Oct 03, 2023	28 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Oct 03, 2023	180 Day
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Brisbane	Oct 03, 2023	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Brisbane	Oct 03, 2023	28 Day
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Brisbane	Oct 03, 2023	14 Day
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N) - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser	Melbourne	Oct 02, 2023	28 Days
Nitrate (as N) - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser	Melbourne	Oct 02, 2023	28 Days
Nitrite (as N) - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser	Melbourne	Oct 02, 2023	2 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Oct 02, 2023	28 Days
Eurofins Suite B19A: Total N (TKN, NOx), Total P			
Phosphate total (as P) - Method: LTM-INO-4040 Phosphate by CFA	Melbourne	Oct 02, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Oct 03, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Oct 03, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFASs)	Brisbane	Oct 03, 2023	28 Days

Description	Testing Site	Extracted	Holding Time
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Oct 03, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Oct 03, 2023	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Oct 03, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFASs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Oct 03, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Oct 03, 2023	28 Days

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJ06
Project ID: SJ06

Order No.:
Report #: 1029894
Phone: 1300 727 527
Fax:

Received: Sep 27, 2023 6:30 PM
Due: Oct 6, 2023
Priority: 5 Day
Contact Name: Andrew Reardon

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Arsenic	Biochemical Oxygen Demand (BOD-5 Day)	Cadmium	Chemical Oxygen Demand (COD)	Chromium	Copper	Dissolved Organic Carbon	Lead	Nickel	Total Organic Carbon	Total Organofluorine*	Total Suspended Solids Dried at 103 °C to 105 °C	Zinc	Chlorinated Hydrocarbons	Eurofins Suite B1	Eurofins Suite B19A: Total N (TKN, NOX), Total P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA # 1261 Site # 1254									X			X			X				X		X				
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X		X	X		X	X		X	X	X		X		X	X	X	X
External Laboratory																									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																				
1	SJ06_UW014	Sep 27, 2023		Water	B23-Se0064862	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	SJ06_PW014	Sep 27, 2023		Water	B23-Se0064863											X				X			X		
3	SJ06_TW014	Sep 27, 2023		Water	B23-Se0064864											X				X					X
4	SJ06_DW014	Sep 27, 2023		Water	B23-Se0064865											X				X					
Test Counts						1	1	1	1	1	1	1	1	1	1	4	1	1	1	4	1	1	2	1	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

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

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	0.01			0.01	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.01			0.01	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total OrganoFluorine*	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.002			0.002	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.002			0.002	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.002			0.002	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.002			0.002	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.002			0.002	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.002			0.002	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.002			0.002	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	110			70-130	Pass	
TRH C10-C14	%	73			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	109			70-130	Pass	
Toluene	%	109			70-130	Pass	
Ethylbenzene	%	108			70-130	Pass	
m&p-Xylenes	%	114			70-130	Pass	
Xylenes - Total*	%	113			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	114			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	%	97			75-125	Pass	
1.2.4-Trichlorobenzene	%	88			70-130	Pass	
1.4-Dichlorobenzene	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	71			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	110			70-130	Pass	
Chloride	%	102			70-130	Pass	
Nitrate & Nitrite (as N)	%	105			70-130	Pass	
Nitrite (as N)	%	95			70-130	Pass	
Sulphate (as SO4)	%	104			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	88			70-130	Pass	
Total Organic Carbon	%	78			70-130	Pass	
Total OrganoFluorine*	%	92			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	99			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	%	107			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	95			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	105			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	101			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	104			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	98			80-120	Pass	
Magnesium	%	110			80-120	Pass	
Potassium	%	100			80-120	Pass	
Sodium	%	108			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	90			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	102			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	111			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	107			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	84			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	95			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	95			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	92			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	75			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	69			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	68			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	78			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	84			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	71			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	96			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	111			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	87			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	93			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	75			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	86			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	98			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	107			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	102			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	69			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	105			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	67			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	73			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	63			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	65			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	120			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	92			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	87			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	81			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	87			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	95			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	93			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	85			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	63			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	90			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	74			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	76			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	87			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	86			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	77			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	90			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	93			50-150	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorodecanesulfonic acid (PFDS)				%	67			50-150	Pass	
LCS - % Recovery										
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace										
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)				%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)				%	84			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)				%	77			50-150	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	B23-Se0064197	NCP		%	89			70-130	Pass	
TRH C10-C14	B23-Se0064208	NCP		%	76			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	B23-Se0064197	NCP		%	89			70-130	Pass	
Toluene	B23-Se0064197	NCP		%	98			70-130	Pass	
Ethylbenzene	B23-Se0064197	NCP		%	100			70-130	Pass	
m&p-Xylenes	B23-Se0064197	NCP		%	98			70-130	Pass	
o-Xylene	B23-Se0064197	NCP		%	99			70-130	Pass	
Xylenes - Total*	B23-Se0064197	NCP		%	98			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH C6-C10	B23-Se0064197	NCP		%	93			70-130	Pass	
Spike - % Recovery										
Chlorinated Hydrocarbons					Result 1					
Hexachlorobenzene	M23-Oc0024265	NCP		%	90			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	B23-Se0064208	NCP		%	74			70-130	Pass	
Spike - % Recovery										
					Result 1					
Chloride	B23-Se0067713	NCP		%	95			70-130	Pass	
Nitrate & Nitrite (as N)	M23-Oc0001038	NCP		%	104			70-130	Pass	
Nitrite (as N)	M23-Oc0001038	NCP		%	95			70-130	Pass	
Sulphate (as SO4)	B23-Se0066533	NCP		%	98			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	B23-Se0061256	NCP		%	78			70-130	Pass	
Total Organic Carbon	M23-Oc0001040	NCP		%	109			70-130	Pass	
Total OrganoFluorine*	Z23-Se0047654	NCP		%	98			70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Arsenic	B23-Se0063675	NCP		%	96			75-125	Pass	
Cadmium	B23-Se0063675	NCP		%	100			75-125	Pass	
Chromium	B23-Se0063675	NCP		%	98			75-125	Pass	
Copper	B23-Se0063675	NCP		%	98			75-125	Pass	
Lead	B23-Se0063675	NCP		%	98			75-125	Pass	
Nickel	B23-Se0063675	NCP		%	97			75-125	Pass	
Zinc	B23-Se0063675	NCP		%	95			75-125	Pass	
Spike - % Recovery										
Eurofins Suite B11C: Na/K/Ca/Mg					Result 1					
Calcium	B23-Se0063675	NCP		%	99			75-125	Pass	
Magnesium	B23-Se0063675	NCP		%	107			75-125	Pass	
Potassium	B23-Se0063675	NCP		%	101			75-125	Pass	
Sodium	B23-Se0063675	NCP		%	121			75-125	Pass	
Spike - % Recovery										

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0064863	CP	%	84			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0064863	CP	%	150			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0064863	CP	%	83			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0064863	CP	%	91			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0064863	CP	%	95			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0064863	CP	%	89			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0064863	CP	%	88			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0064863	CP	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0064863	CP	%	84			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-Se0064863	CP	%	126			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0064863	CP	%	89			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0064863	CP	%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0064863	CP	%	119			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0064863	CP	%	75			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0064863	CP	%	108			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0064863	CP	%	112			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0064863	CP	%	83			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0064863	CP	%	100			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0064863	CP	%	75			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0064863	CP	%	76			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0064863	CP	%	63			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0064863	CP	%	69			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0064863	CP	%	81			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0064863	CP	%	80			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0064863	CP	%	80			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0064863	CP	%	74			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0064863	CP	%	113			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0064863	CP	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0064863	CP	%	76			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0064863	CP	%	94			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-Se0064864	CP	%	84			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0064864	CP	%	73			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0064864	CP	%	76			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0064864	CP	%	83			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0064864	CP	%	76			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0064864	CP	%	71			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0064864	CP	%	73			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-Se0064864	CP	%	76			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-Se0064864	CP	%	91			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-Se0064864	CP	%	91			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-Se0064864	CP	%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-Se0064864	CP	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-Se0064864	CP	%	81			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-Se0064864	CP	%	88			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	B23-Se0064864	CP	%	50			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-Se0064864	CP	%	73			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-Se0064864	CP	%	80			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0064864	CP	%	80			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-Se0064864	CP	%	61			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-Se0064864	CP	%	69			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0064864	CP	%	66			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0064864	CP	%	64			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0064864	CP	%	73			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0064864	CP	%	77			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-Se0064864	CP	%	75			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-Se0064864	CP	%	50			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0064864	CP	%	83			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0064864	CP	%	73			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0064864	CP	%	76			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0064864	CP	%	54			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-Se0064196	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	B23-Se0064201	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	B23-Se0064201	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	B23-Se0064201	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B23-Se0064196	NCP	mg/L	0.001	0.001	2.6	30%	Pass	
Toluene	B23-Se0064196	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B23-Se0064196	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B23-Se0064196	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B23-Se0064196	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	B23-Se0064196	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B23-Se0064196	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B23-Se0064196	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	M23-Oc0032837	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	M23-Oc0032837	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	M23-Oc0032837	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	B23-Se0064201	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	B23-Se0064201	NCP	mg/L	0.1	0.1	6.4	30%	Pass	
TRH >C34-C40	B23-Se0064201	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate								
				Result 1	Result 2	RPD		
Biochemical Oxygen Demand (BOD-5 Day)	B23-Se0066619	NCP	mg/L	330	350	3.5	30%	Pass
Chloride	B23-Se0066315	NCP	mg/L	98	98	<1	30%	Pass
Nitrate & Nitrite (as N)	S23-Se0055842	NCP	mg/L	0.06	0.05	<1	30%	Pass
Nitrate (as N)	M23-Oc0009474	NCP	mg/L	0.31	0.31	<1	30%	Pass
Nitrite (as N)	S23-Se0055842	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Sulphate (as SO4)	B23-Se0066315	NCP	mg/L	72	73	1.9	30%	Pass
Total Kjeldahl Nitrogen (as N)	M23-Oc0035543	NCP	mg/L	130	120	3.6	30%	Pass
Total Organic Carbon	M23-Oc0001039	NCP	mg/L	< 5	< 5	<1	30%	Pass
Total Suspended Solids Dried at 103 °C to 105 °C	B23-Se0064557	NCP	mg/L	44	40	9.5	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO3)	B23-Se0064862	CP	mg/L	180	180	<1	30%	Pass
Carbonate Alkalinity (as CaCO3)	B23-Se0064862	CP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO3)	B23-Se0064862	CP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO3)	B23-Se0064862	CP	mg/L	180	180	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	B23-Se0066619	NCP	mg/L	0.003	0.003	3.7	30%	Pass
Cadmium	B23-Se0066619	NCP	mg/L	0.0004	0.0003	13	30%	Pass
Copper	B23-Se0066619	NCP	mg/L	0.092	0.10	7.6	30%	Pass
Lead	B23-Se0066619	NCP	mg/L	0.018	0.017	3.7	30%	Pass
Nickel	B23-Se0066619	NCP	mg/L	0.019	0.024	22	30%	Pass
Zinc	B23-Se0066619	NCP	mg/L	0.35	0.34	1.5	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B23-Se0066619	NCP	mg/L	34	31	7.9	30%	Pass
Magnesium	B23-Se0066619	NCP	mg/L	7.4	6.9	6.8	30%	Pass
Potassium	B23-Se0066619	NCP	mg/L	8.5	7.9	8.3	30%	Pass
Sodium	B23-Se0066619	NCP	mg/L	68	63	7.8	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Se0064862	CP	ug/L	0.048	0.044	8.0	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Se0064862	CP	ug/L	0.14	0.15	3.9	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Se0064862	CP	ug/L	0.17	0.18	2.9	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Se0064862	CP	ug/L	0.040	0.041	1.3	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Se0064862	CP	ug/L	0.031	0.030	3.0	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Se0064862	CP	ug/L	0.008	0.008	1.7	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Se0064862	CP	ug/L	0.002	0.002	3.4	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0064862	CP	ug/L	0.013	0.012	8.0	30%	Pass

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Se0064862	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0064862	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0064862	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0064862	CP	ug/L	0.004	< 0.002	170	30%	Fail
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0064862	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0064862	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0064862	CP	ug/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0064862	CP	ug/L	0.015	0.014	11	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0064862	CP	ug/L	0.008	0.007	17	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0064862	CP	ug/L	0.10	0.093	12	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0064862	CP	ug/L	0.009	0.010	6.5	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0064862	CP	ug/L	0.27	0.23	15	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<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)	B23-Se0064862	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-Se0064862	CP	ug/L	1.4	1.7	20	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0064862	CP	ug/L	0.12	0.12	3.3	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0064862	CP	ug/L	0.010	0.009	5.4	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-Se0067364	NCP	ug/L	0.32	0.33	2.3	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-Se0067364	NCP	ug/L	0.74	0.80	7.0	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-Se0067364	NCP	ug/L	1.3	1.2	2.7	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-Se0067364	NCP	ug/L	0.17	0.18	5.7	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-Se0067364	NCP	ug/L	0.013	0.012	4.0	30%	Pass
Perfluorononanoic acid (PFNA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-Se0067364	NCP	ug/L	0.59	0.59	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-Se0067364	NCP	ug/L	0.22	0.23	3.3	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-Se0067364	NCP	ug/L	0.47	0.47	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-Se0067364	NCP	ug/L	0.17	0.19	7.6	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-Se0067364	NCP	ug/L	0.014	0.016	15	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-Se0067364	NCP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-Se0067364	NCP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total OrganoFluorine*	B23-Se0064865	CP	mg/L	110	110	<1	30%	Pass

Comments

This report has been revised (V2) to correct report analysis. Unfortunately volume was limited so we were only able to analyze a few tests. Sincere apologies for this error.

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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Zoe Flynn	Analytical Services Manager
Angelique Lang-Frey	Senior Analyst-Volatile
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Joseph Edouard	Senior Analyst-Organic
Mary Makarios	Senior Analyst-Inorganic
Sarah McCallion	Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: - SRA/Reports/Results (USE THIS EMAIL)

Report 1044034-W
Project name SJO6
Project ID SJO6
Received Date Nov 14, 2023

Client Sample ID			SJO6_TW014	SJO6_TW014	SJO6_DW014	SJO6_DW014
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins Sample No.			B23- No0032946	B23- No0032947	B23- No0032948	B23- No0032949
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
Adsorbable Organofluorine (AOF)*	0.05	mg F/L	< 0.05	-	< 0.05	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	0.28	-	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	0.04	-	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
13C4-PFBA (surr.)	1	%	-	Q0920	-	121
13C5-PFPeA (surr.)	1	%	-	106	-	123
13C5-PFHxA (surr.)	1	%	-	134	-	113
13C4-PFHpA (surr.)	1	%	-	137	-	144
13C8-PFOA (surr.)	1	%	-	129	-	103
13C5-PFNA (surr.)	1	%	-	108	-	90
13C6-PFDA (surr.)	1	%	-	88	-	94
13C2-PFUnDA (surr.)	1	%	-	147	-	173
13C2-PFDoDA (surr.)	1	%	-	79	-	74
13C2-PFTeDA (surr.)	1	%	-	59	-	74
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05

Client Sample ID			SJO6_TW014	SJO6_TW014	SJO6_DW014	SJO6_DW014
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins Sample No.			B23- No0032946	B23- No0032947	B23- No0032948	B23- No0032949
Date Sampled			Sep 27, 2023	Sep 27, 2023	Sep 27, 2023	Sep 27, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	-	59	-	49
D3-N-MeFOSA (surr.)	1	%	-	80	-	87
D5-N-EtFOSA (surr.)	1	%	-	64	-	62
D7-N-MeFOSE (surr.)	1	%	-	91	-	149
D9-N-EtFOSE (surr.)	1	%	-	88	-	117
D5-N-EtFOSAA (surr.)	1	%	-	76	-	83
D3-N-MeFOSAA (surr.)	1	%	-	91	-	86
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
13C3-PFBS (surr.)	1	%	-	112	-	117
18O2-PFHxS (surr.)	1	%	-	110	-	94
13C8-PFOS (surr.)	1	%	-	86	-	92
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
13C2-4:2 FTSA (surr.)	1	%	-	95	-	62
13C2-6:2 FTSA (surr.)	1	%	-	INT	-	135
13C2-8:2 FTSA (surr.)	1	%	-	124	-	55
13C2-10:2 FTSA (surr.)	1	%	-	INT	-	152
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	< 0.01	-	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	< 0.01	-	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	< 0.01	-	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	0.32	-	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	-	0.32	-	< 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
Adsorbable Organofluorine (AOF)* - Method: LTM-ORG-2380 Determination of Total Organofluorine by Combustion Ion Chromatography (CIC)	Brisbane	Nov 14, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name:	Sarjaro Pty Limited	Order No.:		Received:	Nov 14, 2023 3:20 PM
Address:	Unit 11, 16 Innovation Parkway Birtinya QLD 4575	Report #:	1044034	Due:	Nov 16, 2023
		Phone:	1300 727 527	Priority:	2 Day
		Fax:		Contact Name:	- SRA/Reports/Results (USE THIS)

Project Name: SJO6
Project ID: SJO6

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Adsorbable Organofluorine (AOF)*	Total Oxidisable Precursor	Per- and Polyfluoroalkyl Substances (PFASs)
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SJO6_TW014	Sep 27, 2023		Water	B23-No0032946	X		
2	SJO6_TW014	Sep 27, 2023		TOP - Water	B23-No0032947		X	X
3	SJO6_DW014	Sep 27, 2023		Water	B23-No0032948	X		
4	SJO6_DW014	Sep 27, 2023		TOP - Water	B23-No0032949		X	X
Test Counts						2	2	2

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. 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

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

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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 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

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
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	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	95			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	110			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	81			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	80			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	102			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	85			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances									
Perfluorooctane sulfonamide (FOSA)			%	80			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	115			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	117			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)			%	90			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	99			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	96			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)									
Perfluorobutanesulfonic acid (PFBS)			%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	101			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	112			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	116			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	107			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	103			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	88			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	102			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	87			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)									
				Result 1					
Perfluorobutanoic acid (PFBA)	B23-No0032949	CP	%	108			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-No0032949	CP	%	110			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-No0032949	CP	%	108			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-No0032949	CP	%	85			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-No0032949	CP	%	76			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-No0032949	CP	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-No0032949	CP	%	90			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-No0032949	CP	%	76			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-No0032949	CP	%	73			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-No0032949	CP	%	89			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-No0032949	CP	%	67			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances									
				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-No0032949	CP	%	87			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0032949	CP	%	85			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0032949	CP	%	102			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0032949	CP	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0032949	CP	%	72			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0032949	CP	%	79			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0032949	CP	%	69			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-No0032949	CP	%	105			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-No0032949	CP	%	97			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-No0032949	CP	%	111			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-No0032949	CP	%	107			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-No0032949	CP	%	124			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0032949	CP	%	106			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-No0032949	CP	%	92			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-No0032949	CP	%	87			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-No0032949	CP	%	135			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0032949	CP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0032949	CP	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0032949	CP	%	83			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-No0032999	NCP	ug/L	0.15	Dil 0.121468	n/a	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-No0032999	NCP	ug/L	0.30	Dil 0.249487	n/a	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-No0032999	NCP	ug/L	1.1	Dil 0.656523	n/a	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-No0032999	NCP	ug/L	0.04	0.04	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-No0032999	NCP	ug/L	0.04	0.04	2.8	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTTrDA)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0032999	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-No0032999	NCP	ug/L	0.03	0.03	7.7	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-No0032999	NCP	ug/L	0.15	0.13	14	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-No0032999	NCP	ug/L	0.39	0.39	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-No0032999	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)	B23-No0032999	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0032999	NCP	ug/L	4.4	Dil 2.349152	n/a	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0032999	NCP	ug/L	0.11	0.11	3.3	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0032999	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
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Alana Wadsworth
Jonathon Angell

Analytical Services Manager
Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



NATA Accredited
Accreditation Number 1261
Site Number 20794

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 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
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Attention: - SRA/Reports/Results (USE THIS EMAIL)

Report 1044040-W
Project name SJO6
Project ID SJO6
Received Date Nov 14, 2023

Client Sample ID			SJO6_UW015	SJO6_UW015	SJO6_PW015	SJO6_PW015
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins Sample No.			B23- No0032963	B23- No0032964	B23- No0032965	B23- No0032966
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Adsorbable Organofluorine (AOF)*	0.05	mg F/L	< 0.05	-	< 0.05	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	0.22	-	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	2.3	-	0.06
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	6.1	-	0.71
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	1.8	-	0.11
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	NO ⁹ 0.11	-	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	-	0.04	-	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
13C4-PFBA (surr.)	1	%	-	71	-	55
13C5-PFPeA (surr.)	1	%	-	99	-	68
13C5-PFHxA (surr.)	1	%	-	125	-	106
13C4-PFHpA (surr.)	1	%	-	87	-	122
13C8-PFOA (surr.)	1	%	-	129	-	112
13C5-PFNA (surr.)	1	%	-	126	-	109
13C6-PFDA (surr.)	1	%	-	104	-	100
13C2-PFUnDA (surr.)	1	%	-	177	-	153
13C2-PFDoDA (surr.)	1	%	-	82	-	72
13C2-PFTeDA (surr.)	1	%	-	61	-	79
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05

Client Sample ID			SJO6_UW015	SJO6_UW015	SJO6_PW015	SJO6_PW015
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins Sample No.			B23- No0032963	B23- No0032964	B23- No0032965	B23- No0032966
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	-	56	-	62
D3-N-MeFOSA (surr.)	1	%	-	92	-	100
D5-N-EtFOSA (surr.)	1	%	-	71	-	80
D7-N-MeFOSE (surr.)	1	%	-	173	-	106
D9-N-EtFOSE (surr.)	1	%	-	109	-	90
D5-N-EtFOSAA (surr.)	1	%	-	96	-	93
D3-N-MeFOSAA (surr.)	1	%	-	102	-	95
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	0.03	-	0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	0.04	-	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	^{N09} 0.19	-	^{N09} 0.02
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	^{N09} 0.02	-	^{N09} < 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	^{N09} 0.49	-	^{N09} 0.02
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
13C3-PFBS (surr.)	1	%	-	54	-	106
18O2-PFHxS (surr.)	1	%	-	106	-	107
13C8-PFOS (surr.)	1	%	-	102	-	91
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
13C2-4:2 FTSA (surr.)	1	%	-	17	-	48
13C2-6:2 FTSA (surr.)	1	%	-	181	-	147
13C2-8:2 FTSA (surr.)	1	%	-	109	-	96
13C2-10:2 FTSA (surr.)	1	%	-	146	-	186
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	0.68	-	0.04
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	0.6	-	0.02
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	0.79	-	0.04
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	11.24	-	0.93
Sum of PFASs (n=30)*	0.1	ug/L	-	11.34	-	0.93

Client Sample ID			SJO6_TW015	SJO6_TW015	SJO6_DW015	SJO6_DW015
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins Sample No.			B23- No0032967	B23- No0032968	B23- No0032969	B23- No0032970
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Adsorbable Organofluorine (AOF)*	0.05	mg F/L	< 0.05	-	< 0.05	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	0.21	-	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	0.04	-	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
13C4-PFBA (surr.)	1	%	-	51	-	111
13C5-PFPeA (surr.)	1	%	-	138	-	90
13C5-PFHxA (surr.)	1	%	-	142	-	83
13C4-PFHpA (surr.)	1	%	-	134	-	113
13C8-PFOA (surr.)	1	%	-	131	-	79
13C5-PFNA (surr.)	1	%	-	100	-	66
13C6-PFDA (surr.)	1	%	-	89	-	62
13C2-PFUnDA (surr.)	1	%	-	138	-	114
13C2-PFDoDA (surr.)	1	%	-	69	-	44
13C2-PFTeDA (surr.)	1	%	-	77	-	56
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
13C8-FOSA (surr.)	1	%	-	50	-	42
D3-N-MeFOSA (surr.)	1	%	-	88	-	55
D5-N-EtFOSA (surr.)	1	%	-	71	-	42
D7-N-MeFOSE (surr.)	1	%	-	128	-	115
D9-N-EtFOSE (surr.)	1	%	-	111	-	72
D5-N-EtFOSAA (surr.)	1	%	-	84	-	47
D3-N-MeFOSAA (surr.)	1	%	-	80	-	53
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01

Client Sample ID			SJO6_TW015	SJO6_TW015	SJO6_DW015	SJO6_DW015
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins Sample No.			B23- No0032967	B23- No0032968	B23- No0032969	B23- No0032970
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
13C3-PFBS (surr.)	1	%	-	119	-	101
18O2-PFHxS (surr.)	1	%	-	101	-	91
13C8-PFOS (surr.)	1	%	-	76	-	73
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	-	< 0.05	-	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	-	< 0.01
13C2-4:2 FTSA (surr.)	1	%	-	101	-	47
13C2-6:2 FTSA (surr.)	1	%	-	INT	-	85
13C2-8:2 FTSA (surr.)	1	%	-	106	-	46
13C2-10:2 FTSA (surr.)	1	%	-	164	-	72
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	< 0.01	-	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	< 0.01	-	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	< 0.01	-	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	0.25	-	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	-	0.25	-	< 0.1

Client Sample ID			SJO6_QCD015	SJO6_QCD015
Sample Matrix			Water	TOP - Water
Eurofins Sample No.			B23- No0032971	B23- No0032972
Date Sampled			Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit		
Adsorbable Organofluorine (AOF)*	0.05	mg F/L	< 0.05	-
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorotridecanoic acid (PFTriDA) ^{N15}	0.01	ug/L	-	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	-	< 0.01
13C4-PFBA (surr.)	1	%	-	96
13C5-PFPeA (surr.)	1	%	-	82
13C5-PFHxA (surr.)	1	%	-	81
13C4-PFHpA (surr.)	1	%	-	89

Client Sample ID			SJO6_QCD015	SJO6_QCD015
Sample Matrix			Water	TOP - Water
Eurofins Sample No.			B23- No0032971	B23- No0032972
Date Sampled			Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
13C8-PFOA (surr.)	1	%	-	69
13C5-PFNA (surr.)	1	%	-	58
13C6-PFDA (surr.)	1	%	-	62
13C2-PFUnDA (surr.)	1	%	-	111
13C2-PFDoDA (surr.)	1	%	-	41
13C2-PFTeDA (surr.)	1	%	-	39
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	-	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	-	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	-	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	-	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	-	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	-	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	-	< 0.05
13C8-FOSA (surr.)	1	%	-	36
D3-N-MeFOSA (surr.)	1	%	-	47
D5-N-EtFOSA (surr.)	1	%	-	28
D7-N-MeFOSE (surr.)	1	%	-	85
D9-N-EtFOSE (surr.)	1	%	-	53
D5-N-EtFOSAA (surr.)	1	%	-	50
D3-N-MeFOSAA (surr.)	1	%	-	48
Perfluoroalkyl sulfonic acids (PFSA's)				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	-	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	-	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01
13C3-PFBS (surr.)	1	%	-	87
18O2-PFHxS (surr.)	1	%	-	81
13C8-PFOS (surr.)	1	%	-	69
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	-	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01
13C2-4:2 FTSA (surr.)	1	%	-	43
13C2-6:2 FTSA (surr.)	1	%	-	43
13C2-8:2 FTSA (surr.)	1	%	-	29
13C2-10:2 FTSA (surr.)	1	%	-	57

Client Sample ID			SJO6_QCD015	SJO6_QCD015
Sample Matrix			Water	TOP - Water
Eurofins Sample No.			B23- No0032971	B23- No0032972
Date Sampled			Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit		
PFASs Summations				
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
Adsorbable Organofluorine (AOF)* - Method: LTM-ORG-2380 Determination of Total Organofluorine by Combustion Ion Chromatography (CIC)	Brisbane	Nov 14, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name: Sarjaro Pty Limited
Address: Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575

Project Name: SJO6
Project ID: SJO6

Order No.:
Report #: 1044040
Phone: 1300 727 527
Fax:

Received: Nov 14, 2023 3:20 PM
Due: Nov 16, 2023
Priority: 2 Day
Contact Name: - SRA/Reports/Results (USE THIS)

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Adsorbable Organofluorine (AOF)*	Total Oxidisable Precursor	Per- and Polyfluoralkyl Substances (PFASs)
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SJO6_UW015	Nov 14, 2023		Water	B23-No0032963	X		
2	SJO6_UW015	Nov 14, 2023		TOP - Water	B23-No0032964		X	X
3	SJO6_PW015	Nov 14, 2023		Water	B23-No0032965	X		
4	SJO6_PW015	Nov 14, 2023		TOP - Water	B23-No0032966		X	X
5	SJO6_TW015	Nov 14, 2023		Water	B23-No0032967	X		
6	SJO6_TW015	Nov 14, 2023		TOP - Water	B23-No0032968		X	X
7	SJO6_DW015	Nov 14, 2023		Water	B23-No0032969	X		
8	SJO6_DW015	Nov 14, 2023		TOP - Water	B23-No0032970		X	X
9	SJO6_QCD015	Nov 14, 2023		Water	B23-No0032971	X		
10	SJO6_QCD015	Nov 14, 2023		TOP - Water	B23-No0032972		X	X
Test Counts						5	5	5

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

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

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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 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
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s							
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	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	139			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	149			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	133			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	112			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	111			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	113			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	114			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	107			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	109			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	127			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	104			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery									
Perfluoroalkyl sulfonamido substances									
Perfluorooctane sulfonamide (FOSA)			%	122			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)			%	99			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)			%	122			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)			%	104			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)			%	96			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	114			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	107			50-150	Pass	
LCS - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)									
Perfluorobutanesulfonic acid (PFBS)			%	135			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	122			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	127			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	134			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	139			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	127			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	118			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	108			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	145			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	104			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	111			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)									
				Result 1					
Perfluorobutanoic acid (PFBA)	B23-No0032949	NCP	%	108			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-No0032949	NCP	%	110			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-No0032949	NCP	%	108			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-No0032949	NCP	%	85			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-No0032949	NCP	%	76			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-No0032949	NCP	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-No0032949	NCP	%	90			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-No0032949	NCP	%	76			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-No0032949	NCP	%	73			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-No0032949	NCP	%	89			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-No0032949	NCP	%	67			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances									
				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-No0032949	NCP	%	87			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0032949	NCP	%	85			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0032949	NCP	%	102			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0032949	NCP	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0032949	NCP	%	72			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0032949	NCP	%	79			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0032949	NCP	%	69			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-No0032949	NCP	%	105			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-No0032949	NCP	%	97			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-No0032949	NCP	%	111			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-No0032949	NCP	%	107			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-No0032949	NCP	%	124			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0032949	NCP	%	106			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-No0032949	NCP	%	92			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-No0032949	NCP	%	87			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-No0032949	NCP	%	135			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0032949	NCP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0032949	NCP	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0032949	NCP	%	83			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B23-No0032947	NCP	ug/L	0.28	0.24	17	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B23-No0032947	NCP	ug/L	0.04	0.04	1.4	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-No0032947	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)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0032947	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0032947	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0032947	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:

Alana Wadsworth Analytical Services Manager
Jonathon Angell Senior Analyst-PFAS



Glenn Jackson
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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Sarjaro Pty Limited
Unit 11, 16 Innovation Parkway
Birtinya
QLD 4575



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Accreditation Number 1261
Site Number 20794

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 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
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Attention: - SRA/Reports/Results (USE THIS EMAIL)

Report 1044045-W
Project name SJO6
Project ID SJO6
Received Date Nov 14, 2023

Client Sample ID			SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- No0032999	B23- No0033000	B23- No0033001	B23- No0033002
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	0.22	0.04	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	0.86	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.5	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	1.46	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	0.004	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.036	0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	0.015	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.045	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	0.021	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	0.066	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	85	95	95	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.86	< 0.05	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	0.32	0.04	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	0.20	0.04	< 0.02	< 0.02
Chlorinated Hydrocarbons						
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	-	-	-
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	-	-	-
Benzal chloride	0.0001	mg/L	< 0.0001	-	-	-
Benzotrichloride	0.0001	mg/L	< 0.0001	-	-	-
Benzyl chloride	0.005	mg/L	< 0.005	-	-	-
Hexachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Hexachlorobutadiene	0.005	mg/L	< 0.005	-	-	-
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	-	-	-
Hexachloroethane	0.005	mg/L	< 0.005	-	-	-

Client Sample ID			SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- No0032999	B23- No0033000	B23- No0033001	B23- No0033002
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
Pentachlorobenzene	0.005	mg/L	< 0.005	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	55	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	0.86	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	0.5	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	1.36	< 0.1	< 0.1	< 0.1
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	6.9	-	-	-
Chemical Oxygen Demand (COD)	25	mg/L	52	-	-	-
Chloride	1	mg/L	730	-	-	-
Dissolved Organic Carbon	5	mg/L	12	-	-	-
NOx-N	0.01	mg/L	< 0.01	-	-	-
Sulphate (as SO4)	5	mg/L	180	-	-	-
Total Kjeldahl Nitrogen	0.2	mg/L	15	-	-	-
Total Nitrogen	0.2	mg/L	15	-	-	-
Total Organic Carbon	5	mg/L	12	-	-	-
Total Phosphorus	0.01	mg/L	0.09	-	-	-
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	9.0	19	10	12
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	300	-	-	-
Carbonate Alkalinity (as CaCO3)	20	mg/L	< 20	-	-	-
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	-	-	-
Total Alkalinity (as CaCO3)	20	mg/L	300	-	-	-
Heavy Metals						
Arsenic	0.001	mg/L	0.011	0.005	0.001	< 0.001
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.002	0.002	0.004	0.006
Copper	0.001	mg/L	< 0.001	0.008	< 0.001	< 0.001
Lead	0.001	mg/L	0.001	0.004	< 0.001	< 0.001
Nickel	0.001	mg/L	0.002	0.003	0.067	0.064
Zinc	0.005	mg/L	0.017	0.040	< 0.005	0.007
Eurofins Suite B11C: Na/K/Ca/Mg						
Calcium	0.5	mg/L	170	-	-	-
Magnesium	0.5	mg/L	50	-	-	-
Potassium	0.5	mg/L	27	-	-	-
Sodium	0.5	mg/L	520	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	0.15	0.11	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	0.30	0.13	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	1.1	0.29	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	0.04	< 0.01	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.04	< 0.01	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-

Client Sample ID			SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- No0032999	B23- No0033000	B23- No0033001	B23- No0033002
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C4-PFBA (surr.)	1	%	87	67	-	-
13C5-PFPeA (surr.)	1	%	103	71	-	-
13C5-PFHxA (surr.)	1	%	69	62	-	-
13C4-PFHpA (surr.)	1	%	70	85	-	-
13C8-PFOA (surr.)	1	%	76	78	-	-
13C5-PFNA (surr.)	1	%	80	71	-	-
13C6-PFDA (surr.)	1	%	80	64	-	-
13C2-PFUnDA (surr.)	1	%	90	74	-	-
13C2-PFDoDA (surr.)	1	%	59	53	-	-
13C2-PFTeDA (surr.)	1	%	32	27	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
13C8-FOSA (surr.)	1	%	61	58	-	-
D3-N-MeFOSA (surr.)	1	%	INT	INT	-	-
D5-N-EtFOSA (surr.)	1	%	INT	INT	-	-
D7-N-MeFOSE (surr.)	1	%	30	26	-	-
D9-N-EtFOSE (surr.)	1	%	31	20	-	-
D5-N-EtFOSAA (surr.)	1	%	61	50	-	-
D3-N-MeFOSAA (surr.)	1	%	59	53	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	0.03	< 0.01	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	^{N09} 0.15	^{N09} 0.01	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	^{N09} 0.39	^{N09} 0.02	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
13C3-PFBS (surr.)	1	%	61	56	-	-
18O2-PFHxS (surr.)	1	%	57	63	-	-
13C8-PFOS (surr.)	1	%	61	58	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTA) ^{N11}	0.05	ug/L	4.4	0.20	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTA) ^{N11}	0.01	ug/L	0.11	< 0.01	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-

Client Sample ID			SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23-No0032999	B23-No0033000	B23-No0033001	B23-No0033002
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
13C2-4:2 FTSA (surr.)	1	%	111	130	-	-
13C2-6:2 FTSA (surr.)	1	%	74	90	-	-
13C2-8:2 FTSA (surr.)	1	%	128	64	-	-
13C2-10:2 FTSA (surr.)	1	%	140	51	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	0.54	0.03	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.43	0.02	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.58	0.03	-	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	6.71	0.76	-	-
Sum of PFASs (n=30)*	0.1	ug/L	6.71	0.76	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of PFASs (n=30)*	0.005	ug/L	-	-	0.266	< 0.005
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	-	-	< 0.001	< 0.001
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	-	-	0.261	< 0.005
Perfluoroalkyl sulfonamido substances- Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	-	-	70	96
D3-N-MeFOSA (surr.)	1	%	-	-	60	98
D5-N-EtFOSA (surr.)	1	%	-	-	59	98
D7-N-MeFOSE (surr.)	1	%	-	-	61	74
D9-N-EtFOSE (surr.)	1	%	-	-	59	73
D5-N-EtFOSAA (surr.)	1	%	-	-	87	96
D3-N-MeFOSAA (surr.)	1	%	-	-	77	80
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	-	-	0.23	< 0.005
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	-	-	0.031	< 0.001
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	-	-	93	80
13C5-PFPeA (surr.)	1	%	-	-	96	87

Client Sample ID			SJO6_UW015	SJO6_PW015	SJO6_TW015	SJO6_DW015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			B23- No0032999	B23- No0033000	B23- No0033001	B23- No0033002
Date Sampled			Nov 14, 2023	Nov 14, 2023	Nov 14, 2023	Nov 14, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
13C5-PFHxA (surr.)	1	%	-	-	127	92
13C4-PFHpA (surr.)	1	%	-	-	137	107
13C8-PFOA (surr.)	1	%	-	-	144	113
13C5-PFNA (surr.)	1	%	-	-	84	83
13C6-PFDA (surr.)	1	%	-	-	97	102
13C2-PFUnDA (surr.)	1	%	-	-	73	84
13C2-PFDoDA (surr.)	1	%	-	-	63	73
13C2-PFTeDA (surr.)	1	%	-	-	103	138
Perfluoroalkyl sulfonic acids (PFSA)s- Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	-	-	0.005	< 0.001
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	-	-	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	-	-	76	65
18O2-PFHxS (surr.)	1	%	-	-	98	88
13C8-PFOS (surr.)	1	%	-	-	96	100
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	-	-	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	-	-	< 0.001	< 0.001
13C2-4:2 FTSA (surr.)	1	%	-	-	34	50
13C2-6:2 FTSA (surr.)	1	%	-	-	45	67
13C2-8:2 FTSA (surr.)	1	%	-	-	74	70
13C2-10:2 FTSA (surr.)	1	%	-	-	61	79

Client Sample ID			SJO6_QCD015
Sample Matrix			Water
Eurofins Sample No.			B23- No0033003
Date Sampled			Nov 14, 2023
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	0.22
TRH C10-C14	0.05	mg/L	0.82
TRH C15-C28	0.1	mg/L	0.5
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	1.32

Client Sample ID			SJO6_QCD015
Sample Matrix			Water
Eurofins Sample No.			B23- No0033003
Date Sampled			Nov 14, 2023
Test/Reference	LOR	Unit	
BTEX			
Benzene	0.001	mg/L	0.003
Toluene	0.001	mg/L	0.036
Ethylbenzene	0.001	mg/L	0.015
m&p-Xylenes	0.002	mg/L	0.050
o-Xylene	0.001	mg/L	0.023
Xylenes - Total*	0.003	mg/L	0.073
4-Bromofluorobenzene (surr.)	1	%	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.01	mg/L	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.82
TRH C6-C10	0.02	mg/L	0.32
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	0.19
Chlorinated Hydrocarbons			
1,2-Dichlorobenzene	0.005	mg/L	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	< 0.005
Benzal chloride	0.0001	mg/L	< 0.0001
Benzotrichloride	0.0001	mg/L	< 0.0001
Benzyl chloride	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Pentachlorobenzene	0.005	mg/L	< 0.005
Tetrachloro-m-xylene (surr.)	1	%	50
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	0.82
TRH >C16-C34	0.1	mg/L	0.4
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	1.22
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	7.1
Chemical Oxygen Demand (COD)	25	mg/L	49
Chloride	1	mg/L	25
Dissolved Organic Carbon	5	mg/L	13
NOx-N	0.01	mg/L	< 0.01
Sulphate (as SO4)	5	mg/L	5.1
Total Kjeldahl Nitrogen	0.2	mg/L	14
Total Nitrogen	0.2	mg/L	14
Total Organic Carbon	5	mg/L	18
Total Phosphorus	0.01	mg/L	0.14
Total Suspended Solids Dried at 103 °C to 105 °C	5	mg/L	< 5

Client Sample ID			SJO6_QCD015
Sample Matrix			Water
Eurofins Sample No.			B23-No0033003
Date Sampled			Nov 14, 2023
Test/Reference	LOR	Unit	
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	110
Carbonate Alkalinity (as CaCO ₃)	20	mg/L	< 20
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20
Total Alkalinity (as CaCO ₃)	20	mg/L	110
Heavy Metals			
Arsenic	0.001	mg/L	0.010
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	0.001
Nickel	0.001	mg/L	0.002
Zinc	0.005	mg/L	0.036
Eurofins Suite B11C: Na/K/Ca/Mg			
Calcium	0.5	mg/L	160
Magnesium	0.5	mg/L	45
Potassium	0.5	mg/L	24
Sodium	0.5	mg/L	470
PFASs Summations			
Sum (PFHxS + PFOS)*	0.001	ug/L	0.58
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.631
Sum of PFASs (n=30)*	0.005	ug/L	2.161
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.521
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	2.116
Perfluoroalkyl sulfonamido substances- Trace			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.005	ug/L	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.005	ug/L	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	< 0.005
13C8-FOSA (surr.)	1	%	98
D3-N-MeFOSA (surr.)	1	%	59
D5-N-EtFOSA (surr.)	1	%	52
D7-N-MeFOSE (surr.)	1	%	77
D9-N-EtFOSE (surr.)	1	%	73
D5-N-EtFOSAA (surr.)	1	%	96
D3-N-MeFOSAA (surr.)	1	%	117
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.14
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.23
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	0.47
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	0.064
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	^{N09} 0.051
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.014

Client Sample ID			SJO6_QCD015
Sample Matrix			Water
Eurofins Sample No.			B23- No0033003
Date Sampled			Nov 14, 2023
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs) - Trace			
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.001	ug/L	< 0.001
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001
13C4-PFBA (surr.)	1	%	84
13C5-PFPeA (surr.)	1	%	73
13C5-PFHxA (surr.)	1	%	107
13C4-PFHpA (surr.)	1	%	115
13C8-PFOA (surr.)	1	%	132
13C5-PFNA (surr.)	1	%	117
13C6-PFDA (surr.)	1	%	103
13C2-PFUnDA (surr.)	1	%	90
13C2-PFDoDA (surr.)	1	%	88
13C2-PFTeDA (surr.)	1	%	126
Perfluoroalkyl sulfonic acids (PFSA)s- Trace			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	0.031
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.001	ug/L	^{N09} 0.004
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.001	ug/L	0.002
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	^{N09} 0.011
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.11
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	^{N09} 0.007
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.001	ug/L	^{N09} 0.47
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	^{N09} 0.001
13C3-PFBS (surr.)	1	%	150
18O2-PFHxS (surr.)	1	%	117
13C8-PFOS (surr.)	1	%	141
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	0.003
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.005	ug/L	0.44
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	0.11
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.001	ug/L	0.003
13C2-4:2 FTSA (surr.)	1	%	73
13C2-6:2 FTSA (surr.)	1	%	57
13C2-8:2 FTSA (surr.)	1	%	74
13C2-10:2 FTSA (surr.)	1	%	^{Q09} INT

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Nov 15, 2023	7 Days
BTEX - Method: USEPA SW846 8260	Brisbane	Nov 14, 2023	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Brisbane	Nov 14, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Nov 15, 2023	7 Days
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Nov 15, 2023	7 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: APHA 5210B	Brisbane	Nov 17, 2023	2 Days
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Nov 15, 2023	28 Days
Dissolved Organic Carbon - Method: APHA 5310B Dissolved Organic Carbon	Melbourne	Nov 15, 2023	28 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Nov 15, 2023	28 Days
Total Phosphorus - Method: ARL308 - Total Phosphorus in Water by Discrete Analyser	Welshpool	Nov 20, 2023	28 Days
Total Suspended Solids Dried at 103 °C to 105 °C - Method: APHA 2540 D	Brisbane	Nov 16, 2023	7 Days
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Brisbane	Nov 14, 2023	180 Days
Eurofins Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Brisbane	Nov 14, 2023	180 Day
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Brisbane	Nov 15, 2023	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Brisbane	Nov 14, 2023	28 Day
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Brisbane	Nov 16, 2023	14 Day
NOx-N - Method: ARL313/319 - NOx in Water by Discrete Analyser	Welshpool	Nov 20, 2023	28 Days
Total Kjeldahl Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Nov 14, 2023	28 Days
Total Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Nov 20, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Nov 14, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl sulfonamido substances- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Nov 14, 2023	28 Days

Description	Testing Site	Extracted	Holding Time
Perfluoroalkyl carboxylic acids (PFCAs) - Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Nov 14, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFASs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Nov 14, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) - low level	Brisbane	Nov 14, 2023	28 Days

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 Tel: +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 Tel: +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 Tel: +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 Tel: +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 Tel: +61 7 3902 4600 NATA# 1261 Site# 20794	1/2 Frost Drive Mayfield West NSW 2304 Tel: +61 2 4968 8448 NATA# 1261 Site# 25079 & 25289

Perth
46-48 Banksia Road Welshpool WA 6106 Tel: +61 8 6253 4444 NATA# 2377 Site# 2370

Auckland	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 Tel: +64 9 526 4551 IANZ# 1327	43 Detroit Drive Rolleston, Christchurch 7675 Tel: +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 Tel: +64 9 525 0568 IANZ# 1402

Company Name:	Sarjaro Pty Limited	Order No.:		Received:	Nov 14, 2023 3:20 PM
Address:	Unit 11, 16 Innovation Parkway Birtinya QLD 4575	Report #:	1044045	Due:	Nov 16, 2023
		Phone:	1300 727 527	Priority:	2 Day
		Fax:		Contact Name:	- SRA/Reports/Results (USE THIS)

Project Name: SJO6
Project ID: SJO6

Eurofins Analytical Services Manager : Zoe Flynn

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chemical Oxygen Demand (COD)	Dissolved Organic Carbon	Total Organic Carbon	Total Phosphorus	Total Suspended Solids Dried at 103 °C to 105 °C	Chlorinated Hydrocarbons	Metals M7	Eurofins Suite B1	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Per- and Polyfluoroalkyl Substances (PFASs) - Trace	Total Nitrogen
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X			X	X	X					
Brisbane Laboratory - NATA # 1261 Site # 20794						X					X		X	X	X	X	X	X	
Perth Laboratory - NATA # 2377 Site # 2370										X									X
External Laboratory																			
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID														
1	SJO6_UW015	Nov 14, 2023		Water	B23-No0032999	X	X	X	X	X	X	X	X	X	X	X	X		X
2	SJO6_PW015	Nov 14, 2023		Water	B23-No0033000						X		X	X		X			
3	SJO6_TW015	Nov 14, 2023		Water	B23-No0033001						X		X	X				X	
4	SJO6_DW015	Nov 14, 2023		Water	B23-No0033002						X		X	X				X	
5	SJO6_QCD015	Nov 14, 2023		Water	B23-No0033003	X	X	X	X	X	X	X	X	X	X		X	X	X
Test Counts						2	2	2	2	2	5	2	5	5	2	2	2	3	2

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

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

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	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.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	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 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
NOx-N	mg/L	< 0.01			0.01	Pass	
Total Nitrogen	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Phosphorus	mg/L	< 0.01			0.01	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	-			20	N/A	
Carbonate Alkalinity (as CaCO ₃)	mg/L	-			20	N/A	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	-			20	N/A	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSa)	ug/L	< 0.01			0.01	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.001			0.001	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	108			70-130	Pass	
TRH C10-C14	%	105			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	105			70-130	Pass	
Toluene	%	105			70-130	Pass	
Ethylbenzene	%	113			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
Xylenes - Total*	%	101			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10	%	109			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2.3-Trichlorobenzene	%	125			75-125	Pass	
1.2.4-Trichlorobenzene	%	118			70-130	Pass	
1.4-Dichlorobenzene	%	95			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	103			70-130	Pass	
LCS - % Recovery							
Chemical Oxygen Demand (COD)	%	88			70-130	Pass	
Chloride	%	98			70-130	Pass	
Sulphate (as SO ₄)	%	99			70-130	Pass	
Total Organic Carbon	%	124			70-130	Pass	
Total Suspended Solids Dried at 103 °C to 105 °C	%	99			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO ₃)	%	114			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Cadmium	%	97			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	97			80-120	Pass	
Lead	%	102			80-120	Pass	
Nickel	%	99			80-120	Pass	
Zinc	%	99			80-120	Pass	
LCS - % Recovery							
Eurofins Suite B11C: Na/K/Ca/Mg							
Calcium	%	106			80-120	Pass	
Magnesium	%	106			80-120	Pass	
Potassium	%	103			80-120	Pass	
Sodium	%	94			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	95			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	110			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	81			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	80			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	102			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	85			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	80			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	115			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	117			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)	%	90			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	99			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	96			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFASs)							
Perfluorobutanesulfonic acid (PFBS)	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	101			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	112			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	116			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	107			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	95			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	78			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	82			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	82			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	119			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	99			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	101			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	112			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	112			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	115			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	106			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	112			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	112			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	70			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	104			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	128			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFASs)- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	137			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	88			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	96			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	140			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	75			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	124			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	112			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	108			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Chlorinated Hydrocarbons				Result 1				
Hexachlorobenzene	M23-No0021430	NCP	%	119		70-130	Pass	
Spike - % Recovery								
				Result 1				
Chloride	B23-No0021776	NCP	%	87		70-130	Pass	
NOx-N	S23-No0030591	NCP	%	99		80-120	Pass	
Sulphate (as SO4)	B23-No0021776	NCP	%	106		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	B23-No0025658	NCP	%	112		75-125	Pass	
Cadmium	B23-No0025658	NCP	%	108		75-125	Pass	
Chromium	B23-No0025658	NCP	%	109		75-125	Pass	
Copper	B23-No0025658	NCP	%	102		75-125	Pass	
Lead	B23-No0025658	NCP	%	104		75-125	Pass	
Nickel	B23-No0025658	NCP	%	104		75-125	Pass	
Zinc	B23-No0025658	NCP	%	104		75-125	Pass	
Spike - % Recovery								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1				
Potassium	B23-No0025658	NCP	%	122		75-125	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	B23-No0033000	CP	%	84		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	B23-No0033000	CP	%	93		70-130	Pass	
Toluene	B23-No0033000	CP	%	89		70-130	Pass	
Ethylbenzene	B23-No0033000	CP	%	102		70-130	Pass	
m&p-Xylenes	B23-No0033000	CP	%	93		70-130	Pass	
o-Xylene	B23-No0033000	CP	%	89		70-130	Pass	
Xylenes - Total*	B23-No0033000	CP	%	92		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH C6-C10	B23-No0033000	CP	%	80		70-130	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	B23-No0033000	CP	%	108		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-No0033000	CP	%	116		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-No0033000	CP	%	135		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-No0033000	CP	%	75		50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-No0033000	CP	%	81		50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-No0033000	CP	%	91		50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-No0033000	CP	%	90		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-No0033000	CP	%	94		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-No0033000	CP	%	107		50-150	Pass	
Perfluorotridecanoic acid (PFTeDA)	B23-No0033000	CP	%	133		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-No0033000	CP	%	74		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	B23-No0033000	CP	%	80		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0033000	CP	%	120			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0033000	CP	%	143			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0033000	CP	%	79			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0033000	CP	%	71			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0033000	CP	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0033000	CP	%	90			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-No0033000	CP	%	123			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-No0033000	CP	%	122			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-No0033000	CP	%	127			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-No0033000	CP	%	108			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-No0033000	CP	%	148			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0033000	CP	%	111			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-No0033000	CP	%	108			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-No0033000	CP	%	105			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-No0033000	CP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0033000	CP	%	117			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0033000	CP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0033000	CP	%	85			50-150	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	B23-No0033001	CP	%	129			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	B23-No0033001	CP	%	127			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	B23-No0033002	CP	%	102			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0033002	CP	%	78			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0033002	CP	%	94			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0033002	CP	%	75			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0033002	CP	%	89			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0033002	CP	%	86			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0033002	CP	%	85			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B23-No0033002	CP	%	111			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B23-No0033002	CP	%	106			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B23-No0033002	CP	%	121			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B23-No0033002	CP	%	109			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B23-No0033002	CP	%	109			50-150	Pass	
Perfluorononanoic acid (PFNA)	B23-No0033002	CP	%	112			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B23-No0033002	CP	%	105			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	B23-No0033002	CP	%	70			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B23-No0033002	CP	%	88			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B23-No0033002	CP	%	89			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B23-No0033002	CP	%	124			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B23-No0033002	CP	%	133			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	B23-No0033002	CP	%	96			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	B23-No0033002	CP	%	93			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B23-No0033002	CP	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B23-No0033002	CP	%	107			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0033002	CP	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B23-No0033002	CP	%	101			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B23-No0033002	CP	%	53			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-No0033002	CP	%	132			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0033002	CP	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0033002	CP	%	110			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0033002	CP	%	75			50-150	Pass	
Spike - % Recovery									
				Result 1					
Total Organic Carbon	B23-No0033003	CP	%	102			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B23-No0025630	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate								
BTX				Result 1	Result 2	RPD		
Benzene	B23-No0025630	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	B23-No0025630	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	B23-No0025630	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	B23-No0025630	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	B23-No0025630	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	B23-No0025630	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	B23-No0025630	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	B23-No0025630	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Chlorinated Hydrocarbons				Result 1	Result 2	RPD		
1,2-Dichlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzal chloride	M23-No0021422	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Benzotrichloride	M23-No0021422	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Benzyl chloride	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachlorobenzene	M23-No0021422	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Biochemical Oxygen Demand (BOD-5 Day)	B23-No0019462	NCP	mg/L	15	13	13	30%	Pass
Chloride	B23-No0032999	CP	mg/L	730	730	<1	30%	Pass
NOx-N	S23-No0030590	NCP	mg/L	0.09	0.09	4.6	20%	Pass
Sulphate (as SO4)	B23-No0032999	CP	mg/L	180	180	<1	30%	Pass
Total Organic Carbon	B23-No0032999	CP	mg/L	12	16	28	30%	Pass
Total Suspended Solids Dried at 103 °C to 105 °C	B23-No0032999	CP	mg/L	9.0	11	20	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO3)	B23-No0032999	CP	mg/L	300	290	2.7	30%	Pass
Carbonate Alkalinity (as CaCO3)	B23-No0032999	CP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO3)	B23-No0032999	CP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO3)	B23-No0032999	CP	mg/L	300	290	2.7	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Cadmium	B23-No0025657	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Copper	B23-No0025657	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead	B23-No0025657	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Nickel	B23-No0025657	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc	B23-No0025657	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Eurofins Suite B11C: Na/K/Ca/Mg				Result 1	Result 2	RPD		
Calcium	B23-No0025657	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Sodium	B23-No0025657	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-No0032999	CP	ug/L	0.15	Dil 0.121468	n/a	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-No0032999	CP	ug/L	0.30	Dil 0.249487	n/a	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-No0032999	CP	ug/L	1.1	Dil 0.656523	n/a	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-No0032999	CP	ug/L	0.04	0.04	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-No0032999	CP	ug/L	0.04	0.04	2.8	30%	Pass
Perfluorononanoic acid (PFNA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0032999	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-No0032999	CP	ug/L	0.03	0.03	7.7	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-No0032999	CP	ug/L	0.15	0.13	14	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-No0032999	CP	ug/L	0.39	0.39	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-No0032999	CP	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)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	B23-No0032999	CP	ug/L	4.4	Dil 2.349152	n/a	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0032999	CP	ug/L	0.11	0.11	3.3	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0032999	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	B23-No0033000	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	B23-No0033000	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	B23-No0033000	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	B23-No0033000	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	B23-No0033000	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	B23-No0033000	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B23-No0033001	CP	ug/L	0.23	0.22	5.0	30%	Pass
Perfluoropentanoic acid (PFPeA)	B23-No0033001	CP	ug/L	0.031	0.031	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	B23-No0033001	CP	ug/L	0.005	0.005	3.3	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B23-No0033001	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B23-No0033001	CP	ug/L	< 0.001	< 0.001	<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
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
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).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Zoe Flynn	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-PFAS
Jonathon Angell	Senior Analyst-Volatile
Mary Makarios	Senior Analyst-Inorganic
Sam Becker	Senior Analyst-Inorganic



Glenn Jackson
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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CERTIFICATE OF ANALYSIS

Work Order	: EB2335828	Page	: 1 of 11
Client	: SARJARO PTY LIMITED	Laboratory	: Environmental Division Brisbane
Contact	: CHLOE SMITH	Contact	: Customer Services EB
Address	: Level 8, 2 Corporate Court Bundall 4217	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: chloe@sarjaro.com	Telephone	: +61-7-3243 7222
Project	: 6 - SJ06	Date Samples Received	: 15-Nov-2023 15:50
Order number	: ----	Date Analysis Commenced	: 15-Nov-2023
C-O-C number	: ----	Issue Date	: 23-Nov-2023 14:28
Sampler	: LEAH KASLAR		
Site	: ----		
Quote number	: EN/333		
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 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
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Timothy Creagh	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020T (Total Metals): The high failing method blank for Copper is deemed acceptable as all results are less than the limit of reporting.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP040: Total Organic Fluorine (TOF) in waters and leachates represents the total fluorine in the organic forms which can be extracted by the SPE 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.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SJO6_QCT015	----	----	----	----
Sampling date / time				14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2335828-001	-----	-----	-----	-----
Result					----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	1830	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	250	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	250	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	184	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	828	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	131	----	----	----	----
Magnesium	7439-95-4	1	mg/L	39	----	----	----	----
Sodium	7440-23-5	1	mg/L	421	----	----	----	----
Potassium	7440-09-7	1	mg/L	21	----	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.009	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.002	----	----	----	----
Lead	7439-92-1	0.001	mg/L	0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.006	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	14.5	----	----	----	----

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SJO6_QCT015	----	----	----	----
Sampling date / time				14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2335828-001	-----	-----	-----	-----
				Result	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N		----	0.1	mg/L	14.5	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P		----	0.01	mg/L	0.08	----	----	----
EN055: Ionic Balance								
ø Total Anions		----	0.01	meq/L	32.2	----	----	----
ø Total Cations		----	0.01	meq/L	28.6	----	----	----
ø Ionic Balance		----	0.01	%	5.90	----	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon		----	1	mg/L	21	----	----	----
EP026-P Chemical Oxygen Demand (COD) (Spectrophotometric)								
Chemical Oxygen Demand		----	10	mg/L	61	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand		----	2	mg/L	14	----	----	----
EP040: Total Organic Fluorine (TOF)								
Total Organic Fluorine		----	20	µg/L	<20	----	----	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene		541-73-1	2	µg/L	<2	----	----	----
1.4-Dichlorobenzene		106-46-7	2	µg/L	<2	----	----	----
1.2-Dichlorobenzene		95-50-1	2	µg/L	<2	----	----	----
Hexachloroethane		67-72-1	2	µg/L	<2	----	----	----
1.2.4-Trichlorobenzene		120-82-1	2	µg/L	<2	----	----	----
Hexachloropropylene		1888-71-7	2	µg/L	<2	----	----	----
Hexachlorobutadiene		87-68-3	2	µg/L	<2	----	----	----
Hexachlorocyclopentadiene		77-47-4	10	µg/L	<10	----	----	----
Pentachlorobenzene		608-93-5	2	µg/L	<2	----	----	----
Hexachlorobenzene (HCB)		118-74-1	4	µg/L	<4	----	----	----
EP080/071: Total Petroleum Hydrocarbons								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SJO6_QCT015	----	----	----	----
Sampling date / time					14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2335828-001	-----	-----	-----	-----
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	-----	20	µg/L		210	----	----	----	----
C10 - C14 Fraction	-----	50	µg/L		750	----	----	----	----
C15 - C28 Fraction	-----	100	µg/L		460	----	----	----	----
C29 - C36 Fraction	-----	50	µg/L		60	----	----	----	----
^ C10 - C36 Fraction (sum)	-----	50	µg/L		1270	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		270	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		140	----	----	----	----
>C10 - C16 Fraction	-----	100	µg/L		780	----	----	----	----
>C16 - C34 Fraction	-----	100	µg/L		450	----	----	----	----
>C34 - C40 Fraction	-----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	-----	100	µg/L		1230	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	-----	100	µg/L		780	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		4	----	----	----	----
Toluene	108-88-3	2	µg/L		36	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		14	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		51	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		23	----	----	----	----
^ Total Xylenes	-----	2	µg/L		74	----	----	----	----
^ Sum of BTEX	-----	1	µg/L		128	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SJO6_QCT015	----	----	----	----
Sampling date / time				14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2335828-001	-----	-----	-----	-----
Result				----	----	----	----	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids - Continued								
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	----	----	----	----
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTriDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----
EP231_TOP_C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SJO6_QCT015	----	----	----	----
Sampling date / time					14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2335828-001	-----	-----	-----	-----
				Result		----	----	----	----
EP231_TOP_C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231_TOP_D: (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	----	----	----	----
EP231_TOP_P: PFAS Sums									
Sum of PFAS	-----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	-----	0.01	µg/L		<0.01	----	----	----	----
^ Sum of TOP C4 - C14 as Fluorine	-----	0.01	µg/L		<0.01	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		<0.0005	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		<0.0005	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		<0.0005	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L		<0.0003	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SJO6_QCT015	----	----	----	----
Sampling date / time				14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2335828-001	-----	-----	-----	-----
				Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.002	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SJO6_QCT015	----	----	----	----
Sampling date / time					14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2335828-001	-----	-----	-----	-----
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L		<0.0005	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L		<0.001	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L		<0.001	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		<0.001	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		<0.001	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0003	µg/L		<0.0003	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0003	µg/L		<0.0003	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0003	µg/L		<0.0003	----	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		40.6	----	----	----	----
Phenol-d6	13127-88-3	2	%		28.9	----	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		73.0	----	----	----	----
2,4,6-Tribromophenol	118-79-6	2	%		68.7	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		83.8	----	----	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		64.7	----	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		80.0	----	----	----	----
Anthracene-d10	1719-06-8	2	%		83.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		87.4	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		112	----	----	----	----
Toluene-D8	2037-26-5	2	%		99.0	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SJO6_QCT015	----	----	----	----
				Sampling date / time	14-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2335828-001	-----	-----	-----	-----
				Result		----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	2	%		99.1	----	----	----	----
EP231_TOP_S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		98.5	----	----	----	----
13C8-PFOA	----	0.02	%		95.0	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		97.9	----	----	----	----
13C8-PFOA	----	0.0005	%		101	----	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	127
Phenol-d6	13127-88-3	10	129
2-Chlorophenol-D4	93951-73-6	20	138
2,4,6-Tribromophenol	118-79-6	14	163
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	34	139
1,2-Dichlorobenzene-D4	2199-69-1	10	129
2-Fluorobiphenyl	321-60-8	19	145
Anthracene-d10	1719-06-8	33	160
4-Terphenyl-d14	1718-51-0	32	177
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	66	138
Toluene-D8	2037-26-5	79	120
4-Bromofluorobenzene	460-00-4	74	118
EP231_TOP_S: PFAS Surrogate			
13C4-PFOS	----	55	131
13C8-PFOA	----	66	128
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Appendix H – CVs



Chloe Smith

Work History

October 2021 to current
2 Years ongoing

Research Scientist - Innovation Manager
Sarjaro Pty Limited
Nationwide throughout all Australian States and Territories
www.sarjaro.com

2016 - 2021
6 Years

Project Manager - Environmental Scientist
Synergy Resource Management Pty Limited
Nationwide throughout all Australian States and Territories
www.synergyresource.com

2014 - 2016
1.5 Years

Product Quality Officer – Scientific Officer (Microbiology)
Gold Coast Water, City of Gold Coast Council
QLD
<https://www.goldcoast.qld.gov.au/Services/Water-sewerage>

2013 - 2014
1.5 Years

Quality Control Chemist
Viva Energy Australia (formerly Shell Company of Australia)
QLD
<https://www.vivaenergy.com.au/>

2010 - 2012
3 Years

Studying Bachelor of Science: Environment
Griffith University
QLD
<https://www.griffith.edu.au/>

Education and Training

Current Construction White Card
Bachelor of Science (Environment)
Major - Natural Resources and Pollution
Current QLD Open Drivers Licence (Class C)
Hazardous Area Training
Excel Training Level 3
First Aid Certification



Skills

Environmental

Air
Sediment
Soil
Water
Remediation
Recycling
Waste
Landfill
Treatment

Analysis

Data Collection
Reporting
Financials
Statistics
Research
Monitoring
Analytical techniques
Creativity
Communication

Research

Literature Review
Reporting
Experimental design
Experimentation
Data analysis
Laboratory analysis
In-situ and ex-situ trials
Innovation
Exploratory techniques

Business

Research
Development
Integrity
Leadership
Mediation
Management
Positive culture
Regulations
Health & Safety

Chloe Smith

Bio

Chloe is an environmental scientist who specializes in research, technology and innovation for soil and water treatment projects. For the last decade, Chloe has held a variety of roles which have extended her experience in the environment sector, including technical positions for Gold Coast Water, Viva Energy and Remediation Contractors. Within this time, Chloe has been involved in laboratory testing and trial works to develop immobilization applications for soil and applying novel treatment applications to improve processes to treat contaminated water. Chloe has a true love for the natural environment and invests her time into working on projects that make a large-scale difference to the way that we clean-up contaminated land and water.

Chloe has been an integral part of the teams who have treated over 4 billion litres of contaminated water, namely PFAS, hydrocarbons, metals, organics, and nutrients across a wide variety of sites, with a range of sensitivities. Her involvement has been a fundamental part of the works in collecting samples, collating data, analysing trends, modifying plant and equipment, and providing innovative solutions to complex issues.

In late 2020 Chloe, along with two of her colleagues, were invited by the Federal Government of the Commonwealth of Australia to speak at the Australian Parliament House about her specific experience on the treatment of PFAS and co-contaminated water across several environmental, industrial and infrastructure projects on various operational Airforce, Army and Navy military sites. Refer link below.

<https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22committees%2Fcommjnt%2Fb9fe60c4-b321-45af-987b-af1d6734257d%2F0001%22;src1=sm1>

In her recent role, Chloe has also obtained skills in accounting and business statistics, incorporating her previous data analysis skills to a new field of works. This has expanded her knowledge on business management and helps to assist the wider team in obtaining the projects goals. Her roles have required her to provide product quality support, environmental health and safety representation and provide legislative advice. Chloe is known for her bright disposition and the way that she listens to understand clients to help determine the best approach for a project, and to achieve the overarching goal.



Role: Environmental Scientist

Project: Liquid Waste Treatment

Location: Yatala, Brisbane Queensland

Client: Hi-Quality

Principal: N/A

Superintendent: N/A

Value:
\$500k Phase 1 (1 Year)
\$2 Million Phase 2 (2 Years)

Timeframe:
Phase 1 January to December 2023
Phase 2 January to December 2024

Chloe Smith

Experience

Scope:

Phase 1 Build, Operation & Maintenance of One (1) up to 2 litres per second Water Treatment Plant

Phase 2 Build, Operation & Maintenance of Two (1) up to 3 litres per second Water Treatment Plant

Sarjaro were engaged by Hi-Quality to provide PFAS waste treatment solutions for their waste treatment facility at Yatala. The project involved the design, construction, mobilisation, setup, commissioning, operation and maintenance of one (1) bespoke multi-barrier water treatment plant for a 12-month trial. A variety of PFAS contaminated liquid wastes was required to be treated to allow discharge into Sewer under a trade waste agreement. The treatment process was designed to be in accordance with the strict requirements of the Queensland Department of Environment and Science (DES) Environmental Authority (EA) 00002264. Plant treatment capacity up to 40,000 litres per day.

<https://apps.des.qld.gov.au/public-register/pages/ea.php?id=104007>

At the conclusion of the 12-month trial period Hi-Quality engaged Andrew and his team to design and construct a larger plant with a treatment capacity up to 120,000 litres per day and extra capability of treating a wider variety and higher concentrations of PFAS as well as co-contaminants metals and hydrocarbons which are present in AFFF wash down water, spills, and industrial wastes.





Role: Project Manager

Project: Research and Development – PFAS Soil & Water Treatment

Client: NXSitu / MEC^x / Sarjaro

Principal: N/A

Superintendent: N/A

Value:
\$500k

Timeframe: Ongoing

Chloe Smith

Experience

Scope: Research and Development of Novel Treatment Methods for PFAS Remediation

Sarjaro are always looking for more innovative, effective, and cost-efficient ways to treat contamination. In recent times, PFAS has become one of the largest known contaminants to site and due to its mobility, is generally widespread in low concentrations, making the remediation of these sites costly.

Current methodologies to remediate PFAS in the water and soil include: containment (e.g. a purpose built containment cell or landfill facility); adsorption to a particular media (e.g. using activated carbon or Rembind); and, incineration (e.g. burning at high temperatures which breaks the carbon-fluorine bond). Both containment and increasing adsorption doesn't remove the contamination, but rather ensures that it is stored as safely as possible, meaning that legacy waste remains, and management and maintenance is ongoing. Incineration breaks down PFAS and removes it from the environment; however, it is an expensive method as it requires the contaminated material to be removed from site, transported to a licensed facility and run through the high energy incineration process.

Sarjaro personnel (namely Chloe, Leah, Stephen and Andrew) are working with a number of experts (NxSitu, MEC^x and Queensland University of Technology) to investigate various new approaches to destroy PFAS within water and soil, rather than the current treatment technologies available. This process involves the defluorination and oxidation of PFAS, breaking down the molecule into its original constituents. Bench scale trials have been completed with a high success rate. Sarjaro will be soon moving to field scale trials to further prove the new technology.





October 2021 to current
2 Years ongoing

2016 - 2021
6 Years

2015
6 months

2013 - 2015
2 Years

2013 - 2015
3 Years

2012 - 2013
3 Years

2009 - 2012
3 years

Leah Kaslar

Work History

Technical Analyst – Remediation Projects

Sarjaro Pty Limited

Nationwide throughout all Australian States and Territories

www.sarjaro.com

Project Manager - Environmental Scientist

Synergy Resource Management Pty Limited

Nationwide throughout all Australian States and Territories

www.synergyresource.com

Research Scientist

CSIRO Australian Tropical Herbarium, QLD

<https://www.ath.org.au/>

Administration, Building and Property Management

Australian Unit Administration, QLD

<https://www.auadmin.com.au/>

Studying Bachelor of Science: Environment

Griffith University, QLD

<https://www.griffith.edu.au/>

Overseas Travel

Systems & Procedures Manager

Rentwest Solutions, WA

<https://www.rentwest.com.au/>

Education and Training

Masters - Business Administration (Torrens University) 2023

Bachelor of Science (Griffith University) 2016

2013-2015 Griffith University Academic Excellence Awards

2015 Hawaii Pacific University Dean's List

Drivers Licence (C)

RMDL and PWCL Marine Licence

Construction White Card

PADI Open Water Diving Certified

First Aid Certification

AFL Players Association Board Member 2020-2021

The AFL Players' Association is a key stakeholder in the AFL industry as it represents the AFL and AFLW players past and present. The AFLPA provides advocacy and representation for issues affecting players and the game, negotiates and enforces the Collective Bargaining Agreement with the AFL and provides multiple support services for past and present players.

Gold Coast Suns Captain 2020. Brisbane Lions Captain 2019



Skills

Research

Literature Review
Reporting
Experimental design
Experimentation
Data analysis
Laboratory analysis
In-situ and ex-situ trials
Innovation
Exploratory techniques

Analysis

Data Collection
Reporting
Financials
Statistics
Research
Monitoring
Analytical techniques
Creativity
Communication

Business

Research
Development
Integrity
Leadership
Mediation
Management
Positive culture
Regulations
Health & Safety

Environmental

Air
Sediment
Soil
Water
Remediation
Recycling
Waste
Landfill
Treatment

Leah Kaslar

Bio

Leah Kaslar began her career in Environmental Remediation to contribute towards making large scale impact in improving the quality of the environment so that it can be enjoyed by future generations. Her career objective is to promote sustainable management of our natural resources whilst supporting the progression of society. Across the past seven-years Leah has worked in the environmental remediation industry primarily in soil and water treatment projects and has developed expertise in the following areas:

- Design, construction and monitoring of Water Treatment Plants
- Environmental Management
- PFAS removal and destruction techniques
- Innovative Solution Creation
- Working with Regulators, Governments and Clients
- Data analysis and Management
- Research and development for new remediation technologies
- Project Management.

Leah Kaslar has managed multiple large water treatment projects for both private and public clients. Her role has also included technical work on research projects to develop and implement new remediation technologies. Key projects include design, construction, and operation of two large scale water treatment plants for the Department of Defence at RAAF Base Williamtown. Our project teams for these plants achieved successful treatment of over 2 billion litres of PFAS contaminated water. This high-profile project was the subject of public scrutiny due to the sensitive receiving environment and impacts to the local community. Leah has demonstrated the ability to undertake multi-faceted roles in challenging environments and deliver high-quality outcomes for employers and clients.

In late 2020 Leah, along with two of her colleagues, were invited by the Federal Government of the Commonwealth of Australia to speak at the Australian Parliament House about her specific experience on the treatment of PFAS and co-contaminated water across several environmental, industrial and infrastructure projects on various operational Airforce, Army, and Navy military sites. Refer link below.

<https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22committees%2Fcommjnt%2Fb9fe60c4-b321-45af-987b-af1d6734257d%2F0001%22;src1=sm1>



Role: Project Manager

Project: Remediation of former Paper Mill

Location: Petrie Brisbane Queensland

Client: Orora

Principal: Moreton Bay Regional Council

Superintendent: JBS&G

Value: \$2 Million

Timeframe: July 2021 to December 2023 (2 ½ Years)

Leah Kaslar

Experience

Scope: Provision, Operation & Maintenance of Three (3) up to 2.5 litres per second Water Treatment Plants (PFAS)

Sarjaro team were engaged by Orora to provide water treatment solutions for this project. The contract involved the design, construction, mobilisation, setup, commissioning, operation and maintenance of three (3) bespoke multi-barrier water treatment plants to manage contaminated groundwater, surface water and landfill leachate. Orora, formerly Amcor, formerly Australian Paper Milling operated the Paper Mill as primarily a carton-board manufacturing facility from 1957 to 2015.

Following the acquisition of the 200-hectare Petrie Paper Mill Site in 2015 by the Moreton Bay Regional Council, Andrew and his team were engaged by Orora to design, manufacture, install, commission, operate and maintain multiple different capacities bespoke multi barrier water treatment plants to assist with remediation of soil, groundwater, surface water and other sediments. This phase required Two (2) up to 2.5 l/sec WTPs to treat pond water and One (1) up to 2.5 l/sec WTP to treat landfill leachate. The multi-barrier treatment process was tailored for efficient and safe removal of 60 pollutants including multiple Per and Polyfluoroalkyl Substances (PFAS), metals and hydrocarbons, whilst adhering to strict regulatory limits, to allow discharge into the North Pine River and adjacent Moreton Bay Marine Park in accordance with the strict discharge requirements of the Queensland Department of Environment and Science (DES) Environmental Authority (EA) EPPR00500613.

<https://apps.des.qld.gov.au/public-register/pages/ea.php?id=103259>

Other responsibilities included provision of scientific technical services to support Orora in meetings with QLD DES to design an industry best practice plant, demonstrate proof of performance and support discharge regulation with commercially realistic, practical and sustainable environmental outcomes.

www.millatmoretonbay.com.au





Role: Environmental Scientist

Project: Burleigh to Palm Beach
M1 Freeway upgrade

Location: Elanora Queensland

Client: SMA Infrastructure

Principal: Queensland
Department of Transport and
Main Roads

Superintendent: GHD

Value: \$2 Million

Timeframe: January 2022 to

December 2023 (2 Years)

Leah Kaslar

Experience

Scope: Provision, Operation & Maintenance of Two (2) up to 2.5 litres per second Water Treatment Plants (PFAS)

Sarjaro were engaged by SMA to provide water management solutions for this project. The contract involved the design, construction, mobilisation, setup, commissioning, operation and maintenance of two (2) bespoke multi-barrier water treatment plants to manage contaminated groundwater and surface water to enable irrigation reuse on site in accordance with the PFAS National Environmental Management Plan (NEMP) on the Burleigh to Palm Beach (B2PB) M1 upgrade. Groundwater on the project was contaminated with Per and Polyfluoroalkyl Substances (PFAS), metals nutrients and hydrocarbons due to the proximity of a Southern Gold Coast Sewerage Treatment Plant.

The B2PB project required provision of scalable storage solutions for untreated and treated water to accommodate changing dewatering requirements due to various construction activities, weather and tidal events. A portable, interconnected, and modular tank farm consisting of up to 25 x 80,000 litre tanks totalling a 2 Megalitre storage capacity provided the project with certainty to ensure uninterrupted construction dewatering activities and onsite reuse of treated water to meet regulatory compliance. Water treatment solution had to be failsafe as the site is adjacent to Tallebudgera Creek a sensitive marine ecosystem and project activities were highly scrutinised by Queensland Department of Transport and Main Roads (TMR) and Queensland Department of Environment and Science (DES).

<https://www.dcceew.gov.au/environment/protection/publications/pfas-nemp-2>

<https://www.tmr.qld.gov.au/projects/pacific-motorway-m1-varsity-lakes-to-tugun-upgrade>





Professional Summary

Mr Mauldin has 34 years of environmental consulting/contracting experience in the area of in-situ/ex-situ remediation with 19 years of experience in the US and 15 years of experience in Australia.

Throughout that time, Denton has developed expertise in the following areas:

- In-Situ Remediation
- PFAS Management and Remediation
- Life Cycle Estimates with Monte Carlo Simulations
- Remediation Technical Expertise
- NAPL Management
- Working with Councils, Regulators and Owners
- SQP in Queensland
- Environmental Management

Denton has closed 35 in-situ remediation projects in the US and Australia (19/16) using various technologies including soil vapour extraction, air sparging, multi-phase extraction, in-situ chemical oxidation (ISCO) and solvent-enhanced ISCO. Denton was a key individual for ISCO in Australia by setting up a way for Australians to purchase the strongest oxidant (sodium persulfate) while accounting for international patents and royalties. Denton was the first person to implement ISCO in Australia with sodium persulfate while honouring patents.

PFAS Remediation Trials and Technology Development

Denton with specialist remediation contractors in the US and Australia has performed a bench trial with third party verification by the Queensland University of Technology to assess the treatment efficacy of advanced oxidation to treat per- and polyfluoroalkyl substances (PFAS) contaminated soil ex-situ. Results indicate that Perfluorooctane Sulfonic Acid (PFOS) reductions were up to 71% in totals and up to 82% in Australian Standard Leaching Procedure (ASLP) leachates. A report of the findings is forthcoming. Work is continuing on soil with higher concentrations of PFAS and enhanced techniques with a PFAS reduction target of 99% or greater.

Career Highlights (Contaminated Land Management)

PFAS: Confidential Client, Gold Coast, QLD

Project suitably qualified person (SQP) for major roadway expansion project adjacent to sewerage treatment plant. Managed environmental consultants and contractors to provide the prime contractor with advice regarding the investigation, waste classification, disposal and remediation of PFAS contamination.

PFAS: Confidential Client, Brisbane, QLD

Managed environmental consultants and contractors to remediate a PFAS-contaminated site. Procured 35L/s water treatment plant to treat 200 megalitres of water impacted with PFAS and dissolved metals. Designed, procured and managed PFAS investigations in soil and sludge. Facilitated soil and sludge ex-situ treatment trials to process 400,000 tonnes of waste.

CLM Team Management: Sydney and Newcastle, NSW

Denton acted as the environmental services manager for nine environmental scientists and engineers to look after fifty CLM projects in the Newcastle region. The projects involved environmental compliance and monitoring for mines and ports, performing environmental investigations and assisting with the development of commercial/industrial and residential sites. The assessments involved performing phase 1 and 2 assessments, the preparation of remedial action plans and management plans. In Sydney, Denton managed the largest in-situ remediation team in Australia of CLM remediation practitioners for over seven years at two companies. The team managed CLM sites, including audited sites, performed site characterisation and performed remediation to close 21 sites.

Petroleum: Confidential Client, Chinchilla QLD

Completed Sampling and Quality Analysis Plan (SAQP) and managed the assessment of petroleum hydrocarbons after a potential contamination risk was identified from an interceptor pit and oily-water pond at a field compression station for a major oil company.

Career Highlights (Remediation Projects)

ISCO: Consultancy, Eltham, VIC

Completed full-scale implementation of ISCO while representing a US-based technology expert for a consultancy. Treated trichloroethene (TCE) and daughter products in groundwater using a proprietary recirculation system and advanced activation methods. Percent reduction of TCE ranged from 96.7 to 99.8 %. Provided technical expertise and input into the safe implementation of the project.

SE-ISCO: Consultancy, Springvale, VIC

Completed bench-scale study provided technical oversight for the full-scale implementation of Solvent-Enhanced In-Situ Chemical Oxidation (SE-ISCO) while representing a US-based technology expert for a consultancy in VIC.

LNAPL Pilot Trial (skimming and transmissivity study): Quadrant Energy, Varanus Island, WA

Inherited the largest company project that had poor communications with the client and was due to lose several \$100,000. I brought to bear my skills in LNAPL recovery and contacted Dr Randall Charbeneau (former University advisor) to assist with LNAPL transmissivity testing and tide fluctuations to help turn the project around. I also brought in a local project manager to improve client relations and project performance. As a result the project completed on time and with a profit.

Solvent-Enhanced ISCO (recirculation): Major Petroleum Company, Randwick, NSW

Designed and provided technical oversight of a large petroleum hydrocarbon plume spanning 3 city blocks through a residential/commercial area. Denton worked with MEC^x (technology partner) to develop a remedial approach that included the injection of an organic terpene to demobilise residual contamination followed by alkaline-activated sodium persulfate to oxidise the plume. Enough solvent was injected to mobilise all the known contaminant mass adsorbed to the soil (6 tonnes). An equivalent mass of sodium persulfate was injected to oxidise the desorbed contamination. Remediation work has enabled the client to remove a pump and treat system, reduce groundwater monitoring scope, solve a vapour intrusion issue and reduce environmental management costs by \$6M for the life of the project.

Solvent-Enhanced ISCO (recirculation): State Government, Gosnells, WA

Provided oversight of laser-induced fluorescence (LIF) investigation to provide detailed delineation of sorbed residual mass. LIF results lead to implementation of a shallow excavation to remove adsorbed mass above the water table. Designed and provided technical oversight of a large petroleum hydrocarbon plume spanning 2 city blocks through a residential/commercial area. Denton worked with MEC^x (technology partner) to develop a remedial approach that included the injection of an organic terpene to demobilise residual contamination followed by alkaline-activated sodium persulfate to

oxidise the plume. Enough solvent was injected to mobilise all the known contaminant mass adsorbed to the soil (4 tonnes). An equivalent mass of sodium persulfate was injected to oxidise contamination.

ISCO (recirculation): Major Petroleum Company, Rydalmere, NSW

Worked with technology partner, MECX, to develop a remedial approach to oxidise LNAPL and dissolved petroleum hydrocarbons. Groundwater quality 1 year after the ISCO event improved from the presence of 0.033 ft of LNAPL to the absence of LNAPL (100% removal) with the following reductions in groundwater: 93% benzene, 90% TPH C6-C9 and 90% TPH C10-C36.

ISCO: Major Petroleum Company, Croydon Park, South Australia

Designed, permitted, and performed three ISCO injections to treat petroleum hydrocarbons and 1, 2-dichloroethane (DCA) at a former petroleum service station. Light non-aqueous phase liquid (LNAPL) was removed and benzene was reduced from up to 7,760 micrograms per litre (µg/L) to below the method detection limit of 1 µg/L and below the site-specific target levels (SSTLs) in all other wells. SSTLs have been met across the site.

ISCO: Major Petroleum Company, Tweed Heads, NSW

Designed, permitted, and implemented surfactant-enhanced ISCO injection to treat petroleum hydrocarbons at a petroleum service station. Greater than 90 percent reduction was achieved in BTEX and TPH and SSTLs were met after the first injection. Benzene was reduced from 21,400 µg/L to 0.11 µg/L (below the SSTL of 6 µg/L). The site received Auditor sign-off later in the year.

ISCO: Major Petroleum Company, Eastlakes, NSW

Designed, permitted, and performed one ISCO injection to treat petroleum hydrocarbons at an active petroleum service station. TPH concentrations were reduced from near 8,000 µg/L to 80 µg/L. Benzene was reduced from 350 µg/L to below the site-specific cleanup level of 70 µg/L. Monitoring continued throughout 2011 and the site should receive Auditor sign-off later in the year. Note: First full-scale sodium persulphate injection in Australia for petroleum.

Career Highlights (Contractor Management and Service Procurement)

Remediation System Procurement; Various sites; NSW, VIC, QLD and WA

Completed designs of seven (7) mobile groundwater treatment systems for deployment to sites across Australia. The design involved the development and drafting of process flow diagrams and process and instrumentation diagrams using AutoCAD, performing hazard analyses with the contractor and client and quality control inspections. Most systems were constructed by one technology partner but competitive quotes were tendered, when required. Systems were constructed to be placed in potentially explosive atmospheres and included sound proofing. Also completed a similar process for thirty (30) systems in the US.

Retention Pond Backfill and Re-Grading; Enid, Oklahoma (USA)

Performed construction oversight activities for the backfilling of an 8-hectare retention pond and the grading of approximately 16 hectares. During the 6-month project approximately 120,000 cubic metres of soil was excavated and backfilled to remove a former retention pond at a petroleum refinery. Responsible for complying with Health and Safety, SWPPP, and managing daily activities.

Site Remediation; Lincoln, Nebraska (USA)

Managed a \$1.8 million performance-based contract (PBC) project at the 155th Air Wing in Lincoln, NE for Air National Guard (ANG) Headquarters at Andrews Air Force Base. Procured a contractor to install a biosparging system and to remediate 8,000 tons of petroleum contaminated soil. Project returned a 15 percent margin based on timely delivery and efficiency of the remedial design.

Experience

Principal Consultant

NX-Situ Remediation Pty Ltd, Denver, CO and Australia

May 2021 - present

Jul 2015 – Nov 2016

Worked as Remediation Specialist for Ventia, Australian Environmental Auditors, AECOM, ARCADIS, Sarjaro, DRC, Ramboll, Harwood Environmental Consultants, Stantec, Carton Board Recycler and Barangaroo Development Authority. Managed environmental consultants/contractors to remediate a PFAS site. Designed, procured and managed PFAS investigations in soil and sludge. Facilitated soil and sludge ex-situ treatment trials to process 400,000 tonnes of waste.

Principal Consultant

Kleinfelder Australia Pty Ltd, Newcastle, Sydney and Brisbane

Dec 2018 – April 2021

National Remediation Practice Lead and Global Environmental Leadership Team Member

Secured \$3M project by incorporating innovative remediation technology

Developed new client relationships with major oil companies and Department of Defence

Found and pursued opportunities totalling 2X company's annual revenue

Manager Environmental Services

RCA Australia, Newcastle NSW

Nov 2016 – August 2018

Managed group profit and loss, contractual risk and performance of group

Improved business development network and managed team of 10

Brought team out of loss into growth and profit

Technical Director

Ventia (formerly Thiess) Services Pty Ltd, Sydney, Australia

Sep 2012 – Jul 2015

Returned 36% profit on \$7.5M revenue and reduced client's costs by \$500k/yr

Managed subcontractors and contractual risk on multi-million dollar projects

Designed complex chemical injection systems for projects in NSW, WA and QLD

Remediation Practice Leader

OTEK Pty Ltd, Sydney, Australia

Oct 2008 – Sep 2012

Managed the largest in-situ remediation team of scientist in Australia

Obtained regulatory closure on 11 sites in 4 states

Achieved 20% profit on \$8M revenue

Senior Project Manager

Jacobs (formerly CH2M Hill), Sydney, NSW and Denver, CO

Jul 2005 – Oct 2008

Managed performance-based projects (PBCs) for the Air National Guard

Secured 15% margin on PBCs

Acted as technical lead on numerous \$5-20M proposals on federal PBC projects

Education, Training and Certifications

B.S., Civil Engineering, University of Texas at Austin, Austin, TX

Professional Engineer: CO (#31324)

40-Hour Health and Safety Training Course HAZWOPER

First Aid and CPR

Chi Epsilon (Civil Engineering Honour Society)

Presentations and Conference Participation

Presenter: High Resolution Site Characterisation Workshop 2020, CleanUp 2019, EcoForum 2018, CleanUp 2015 (in absentia), EcoForum 2014, EcoForum 2012, EcoForum 2011 and EcoForum 2010

Guest Lecturer: ISCO, University of Technology, Sydney, Australia 2009

Guest Lecturer: Hazardous Waste Remediation, Colorado School of Mines, 2007

Presenter: Singapore Environment Institute, Remediation, Sydney, Australia 2005

Guest Lecturer: EMC-South Korea, Workshop, In-Situ Remediation, S. Korea 2005

Publications

T. H. Illangasekare, D. Mauldin, et. al. A Multi-Scale Laboratory Assessment of Cleanup Endpoints for a NAPL- Contaminated Site, Presented at 2000 Conference on Haz Waste Research, Denver, CO.
Denton Mauldin, Flow Modelling for Vapour Extraction Systems, Delta Technical Review, VI-2.

Logistics

Dual citizenship in USA and Australia. Baseline clearance – Defence.

Career Highlights (Water Treatment)

Groundwater Boundary Control: Jemena, Newcastle, NSW

Re-designed system to treat challenging groundwater waste stream. Initial design was completed by others and consisted of sedimentation and granular activated carbon adsorption. After finding issues with non-aqueous phase liquid (NAPL) emulsions and metal oxides the re-design included the following process additions: pH adjustment, aeration, coagulant addition, mixing, polymer addition, sludge dewatering, ultraviolet oxidation, organoclay adsorption, glass media filtration and backwashing. The delays and trialling of other technologies such as dissolved air floatation, powder-activated carbon, bentonite slurry and Mycelx adsorption lead to a financially challenging condition but led to a viable operating system.

Dual-Phase Extraction and Groundwater Treatment System; Linden, New Jersey (USA)

Re-designed and completed start-up of a groundwater recovery and treatment system designed to recover groundwater with dissolved chlorinated solvents and high levels of dissolved iron at a solvent recycling centre. The system was capable of handling a flow rate of 450 litre per minute and incorporates an inorganic reduction system that consists of pH adjustment, clarification, and sludge treatment. The system was controlled by a programmable logic controller (PLC) capable of remote monitoring/operation and interfaces with the facility's PLC system.

Groundwater Remediation: Union Pacific Railroad, Las Vegas, Nevada (USA)

Designed, permitted, and provided construction oversight of numerous groundwater remediation systems. The main contaminants existing at the site were diesel fuel floating on the surface of the groundwater and chlorinated solvents dissolved in the groundwater. Denton completed the design of seven separate groundwater recovery systems, which included approximately 150 lineal metres of three separate recovery trenches and seven groundwater recovery wells on the 100-hectare site. Denton also completed the design of five groundwater treatment systems, which recovered over 150,000 litres of leaked diesel fuel and processed over 160,000,000 litres of water. The conveyance systems were double-contained and covered 1,000 lineal metres. Some of the treatment systems incorporated PLCs that were capable of remote monitoring and alarm notification.

Groundwater Recovery Trench: Union Pacific Railroad, Sedalia, Missouri (USA)

Designed, permitted, and performed installation oversight activities of a 200-metre-long groundwater recovery trench. The recovery trench was designed to prevent the continued migration of chlorinated solvents from the rail yard. The recovery system operated reliably for about eight years. The design incorporates 600 lineal metres of double discharge lines with telemetry notification of alarm conditions.

Chlorinated Hydrocarbon Recovery Trenches, Chemical Manufacturer: Tulsa, Oklahoma (USA)

Completed the design of two separate recovery trenches spanning over 200 lineal metres. The trenches incorporate custom-built conical well casing shrouds to collect denser-than-water non-aqueous phase liquids (DNAPL). The system operated reliably for over eight years while under Denton's maintenance oversight. Dissolved contaminant levels decreased several orders of magnitude and reduced the plume size to approximately one-third of the original size.

(Additional Remediation Projects - USA)

Groundwater Remediation/SVE: Chemical Manufacturer, Cheyenne, Wyoming

Performed design and management tasks for a groundwater recovery and soil remediation system designed to clean-up a tetrachloroethene spill in a Union Pacific Railyard. Denton designed an ISCO pilot trial using potassium permanganate to test the oxidation of tetrachloroethene and its daughter products. Denton designed and oversaw installation of an upgrade to the existing system by adding carbon adsorption, vapour treatment in a nearby basement, and a programmable logic controller to allow for remote monitoring and data collection. Obtained approval from the State of Wyoming to discontinue operation of the groundwater and soil remediation systems.

Dual-Phase Extraction System: Safety-Kleen, Hebron, Ohio

Designed, permitted, and performed installation oversight activities of a dual-phase extraction system to recover chlorinated solvents adsorbed to soil and dissolved in groundwater beneath a solvent recycling centre. The system consisted of thirteen dual-phase extraction wells and five groundwater recovery wells and designed and installed a PLC to monitor and collect operation data remotely. Denton also permitted and designed the connection of process emissions to the facility thermal oxidiser.

Groundwater Remediation: Anadarko Petroleum, Enid, Oklahoma

Designed, permitted, and performed pilot trials for remediating dissolved petroleum in groundwater. The technologies assessed the effectiveness of oxygen releasing compounds, biosparging, and ISCO using sodium persulfate and Fenton's Reagent. Denton developed guaranteed fix-priced costs for the implementation of biosparging at the site.

Soil and Groundwater Remediation: Insurance Company, Selma, California

Completed the design, permits, installation, and operational oversight of SVE system to reduce levels of light non-aqueous phase liquid (LNAPL) and to reduce volatile organic compound concentrations in soils at a fuelling area for a tyre distribution centre. The SVE system incorporated a thermal/catalytic oxidiser to treat emissions for the SVE system. Performed operation and reporting tasks. After one year of operation, LNAPL thicknesses decreased to below measurable thicknesses and soil vapour concentrations decreased by three orders of magnitude. A proposal to discontinue operation of the SVE system was approved and the SVE system and emission control device was transported to a new site for the same client.

