

Project Caymus - Quarterly Environmental Report – November 2025

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Crowley Australia Pty Ltd

Project Caymus
12 December 2025



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Executive summary

Jacobs Group (Australia) Pty Ltd (Jacobs) was engaged by Crowley Australia (Crowley) to undertake the quarterly groundwater and surface water monitoring as required by their Environmental Monitoring Program (EMP) and Environmental Approval (EP2021/008-002).

As required by condition 10 (l) of EP2021/008-002, quarterly monitoring of surface water and groundwater within the premises has been undertaken in accordance with EP2021/008-002, Table 2 Appendix 2 and the Environmental Monitoring Program (Jacobs, 2024). The purpose of the monitoring program is to assess the potential impacts the operation of site is having on the groundwater and surface water within and around site.

The scope of work for the October/November monitoring event included:

- Groundwater sampling of six groundwater wells, surface water sampling at five location and the collection of quality assurance/ quality control samples (QA/QC).
- Laboratory analysis for the suite of contaminants outlined in the EMP.
- Assessment of analytical results against the adopted water quality objectives.
- An interim report of the results, conclusions and recommendations of the monitoring event.

Conclusions and recommendations

Groundwater

General groundwater quality is reflective of the natural background conditions. Several nutrient concentrations including ammonia nitrogen, total phosphorous, total nitrogen and reactive phosphorous are above the adopted water quality objectives. These nutrient detections are in line with those reported in the Pre-Operations Report (Jacobs, 2025) and are believed to be indicative of natural occurring concentrations. It is uncertain what has caused elevated concentrations of e. coli and enterococci, however it is unlikely due to site operations.

Copper concentrations detected above the adopted water quality objectives are in line with historic sampling and are likely due to background conditions. Elevated levels of cadmium, copper, lead, nickel and zinc detected at MW05 are likely due to the acidic conditions at this location and are not attributable to operational activities. Hydrocarbons were not detected, suggesting no fuel leaks/spills have occurred/breached containment from the site.

PFAS in groundwater did not exceed the adopted water quality objectives, but elevated concentrations were noted. It is understood that this contamination is not due to site activities.

Surface water

Nutrient concentrations (including ammonia nitrogen, total nitrogen and total phosphorus) were reported above the adopted water quality objectives. In general, algal growth was identified at monitoring locations, this indicates natural organic material such as leaf litter or debris is washing into the drains and undergoing decomposition, likely resulting in the elevated nutrient concentrations. E. coli and enterococci detection were noted in all samples, it is uncertain what has caused these detections, however it is unlikely due to site operations.

Zinc concentrations were reported above the water quality objective at every location. There were also several copper exceedances recorded. This is in line with historical monitoring and is likely representative of background conditions.

Recommendations

It is proposed that site-specific water quality objectives are derived, specifically targeting the following:

- **Nutrients** – Ammonia nitrogen, total nitrogen and total phosphorous in both groundwater and surface water.
- **Metals** – Zinc in surface water and copper in groundwater.

The Australian and New Zealand Guidelines for Marine and Fresh Water Quality (ANZG, 2024) outline several possible methodologies for deriving site-specific water quality objectives, one method being adopting the 80th percentile of results from a reference site (in this case the baseline data). This methodology could be applied to this site, however consideration for seasonal variability may need to be made.

The next monitoring events will comprise:

Groundwater: Mid-wet season (January 2026)

Surface Water: Mid-wet season (January 2026)

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1. Introduction

Crowley Australia (Crowley) as proponent for the Project Caymus Bulk Fuel Storage Facility (site) was issued with an Environmental Approval under the Environment Protection Act 2019 (EP Act) (EP2021/008-001) on 29 November 2021. The Approval was subsequently amended by variations to conditions 6(d), 11(i), 11(j) made pursuant to Section 65 of the EP Act. The Environmental Approval (EP2021/008-002) includes the following conditions related to this report:

- **Condition 7(a)** *"Crowley to design and implement a monitoring program, to the satisfaction of the CEO, which demonstrates compliance with condition 10(g) and 10(l) of the environmental approval. The monitoring program must include:*
 - *The collection of baseline data over an appropriate time period;*
 - *Appropriate monitoring of relevant parameters in accordance with appendix 2 of this approval;*
 - *A system for recording and maintaining monitoring details and data records; and*
 - *A quality assurance and quality control system."*
- **Condition 10 (l)** *"The approval holder must conduct surface water and groundwater quality monitoring within the premises, in accordance with the monitoring program under conditions 7 that measures the parameters listed in Appendix 2."*

Crowley engaged Jacobs Group (Australia) Pty Ltd (Jacobs) to prepare an Environmental Monitoring Program (EMP) to guide the ongoing environmental monitoring at site to ensure compliance with the environmental approval. The EMP was submitted to the Department of Lands, Planning and Environment (DLPE) Northern Territory Government who acknowledged receipt in November 2024. The EMP guides the ongoing monitoring conducted for this report.

1.1 Purpose of this report

The purpose of this report is to:

- Fulfil the requirements of the EMP and EP2021/008-002.
- Assess potential impacts of the operation of site on the groundwater and surface water within and around site.

1.2 Scope of works

The scope of the monitoring program (for surface water and groundwater) was defined in the EMP and included the:

- location and frequency of surface water and groundwater samples.
- proposed analytical suite for each sample.
- Water quality objectives to be adopted for evaluation of sample results.

The scope of work for the October/November monitoring program included:

- Groundwater sampling of six groundwater wells, surface water sampling at five locations and the collection of quality assurance/ quality control samples (QA/QC).
- Laboratory analysis for the suite of contaminants outlined in the EMP.
- Assessment of analytical results against the adopted water quality objectives.

- An interim report of the results, conclusions and recommendations of the monitoring event

2. Previous Investigations

2.1 Sampling Events

The below table outlines the environmental monitoring that has previously been conducted on site. Note samples of surface water and groundwater collected pre-construction and/or during construction are considered to represent background water quality (i.e. water quality not impacted by site operations).

Table 2-1 Previous sampling events

Date	Site Operation status	Report
June 2021	Pre-construction	Detailed Site Investigation (DSI) Parcels 5720, 6350, 5711 and Southern Section of Parcel 5673, Berrimah Road, East Arm, NT – CDM Smith
November/ December 2024	During construction	Project Caymus – Pre-Operations Environmental Investigation – Jacobs
March 2025	During construction	
July 2025	During construction	
October/November 2025	Partial Operation	This report

2.2 Key findings of previous investigations

Groundwater

A total of four pre-operation groundwater monitoring events were completed (the first conducted by CDM Smith was prior to construction). The following conclusions were made regarding groundwater onsite:

- Groundwater quality was generally consistent across site, except for MW05. Water quality at MW05 is notably different to other locations, with acidic water and higher concentrations of metals reported at this location compared to other locations. The cause of lower pH at this location was not identified but was concluded not to be attributable to construction activities.
- Average nutrient concentrations including of ammonia nitrogen, total phosphorous, total nitrogen and dissolved reactive phosphorous are above the adopted water quality objectives. These nutrient detections are believed to be indicative of natural occurring concentrations.
- Average copper concentrations across the site are above the adopted water quality objectives. This is representative of pre-existing site conditions, which are consistent with the neighbouring Vopak site.
- Notable concentrations of several PFAS compounds (mainly 6:2 FTS) were recorded in MW01. It is believed that this is a result of an incident that occurred at the neighbouring Vopak site, leading to PFAS contaminated groundwater and surface water migrating across the boundary. No exceedances of the adopted criteria were noted. However, these guidelines are under constant review and updated based on new scientific evidence, as such ongoing monitoring of these substances should be continued and reviewed in future when necessary.
- Pre-operations groundwater analytical results shown in **Table 2-2**.

Surface water

A total of 13 surface water samples were collected over two monitoring events. The following conclusions were found:

- Average nutrient concentrations including of ammonia nitrogen, total nitrogen and total phosphorous are above the adopted water quality objectives. In general, algal growth was identified at monitoring locations, this indicates natural organic material such as leaf litter or debris is washing into the drains and undergoing decomposition, likely resulting in the elevated nutrient concentrations.
- Average zinc concentrations were reported above the adopted water quality objectives. There were also several copper exceedances recorded across the site. These exceedances are consistent with those of the neighbouring Vopak site.
- PFAS concentrations were at several locations across the site. It is understood that the PFAS is migrating to the site from the adjacent Vopak site.
- Pre-operations surface water analytical results shown in **Table 2-3**.

Table 2-2 Previous groundwater analytical results

Parameter	Units	Water Quality Objectives	Apr 2021		Nov/Dec 2024		Mar 2025		July 2025		All events	
			Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Field Parameters												
pH	-	7.0-8.5	7.6	7.89	6.4	6.95	6.4	6.8	6.6	6.94	6.61	7.89
Electrical conductivity	µS/cm	NA	32525	60600	10046	19100	4424	9430	12052	30300	11627	60600
Total suspended solids	mg/L	30	NS	NS	NS	NS	54	127	280	805	166	805
Turbidity	NTU	4	NS	NS	NS	NS	111	465	171	440	141	465
Dissolved oxygen	DO%	80-100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Temperature	°C	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Environmental Indicators												
Ammonia nitrogen (NH3-N)	µg/L	20	8655	13100	2800	10900	390	1210	2600	10600	2736	13100
Dissolved reactive phosphorous (PO4-P)	µg/L	10	<10	<10	19.0	50.0	6.0	10	16	60	11.2	60
Chlorophyll-a	µg/L	4	NS	NS	NS	NS	1	3	<1	<1	0.8	3
Biological oxygen demand	mg/L	NA	NS	NS	NS	NS	4.2	16	2	6	3.6	16
Total Recoverable Hydrocarbons	mg/L	10	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100

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Parameter	Units	Water Quality Objectives	Apr 2021		Nov/Dec 2024		Mar 2025		July 2025		All events	
			Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Total nitrogen	µg/L	300	9850	12500	4100	12000	1700	2300	NS	NS	4004	12500
Total phosphorus	µg/L	30	785	1290	61.0	110	25	60	NS	NS	166	1290
<i>E.coli</i>	MNP/100ml	200	NS	NS	NS	NS	NS	NS	10	48	10	48
Enterococci	MNP/100ml	50	NS	NS	NS	NS	NS	NS	<1	<1	<1	<1
Metals												
Arsenic	µg/L	NA	6.0	7	8.5	15	5.3	16	8.4	15	7.2	16
Cadmium	µg/L	0.7	<0.1	<0.1	<0.1	<0.1	0.06	0.1	0.06	0.1	0.06	0.1
Chromium (CrIII)	µg/L	27	NS	NS	NS	NS	<10	<10	<10	<10	<10	<10
Chromium (CrVI)	µg/L	4.4	NS	NS	NS	NS	<10	<10	<10	<10	<10	<10
Copper	µg/L	1.3	<1.0	<1.0	2.4	10	20	100	215	1050	70	1050
Iron	µg/L	NA	NS	NS	NS	NS	25148	109000	14930	47900	20034	109000
Lead	µg/L	4.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.6	1.0	0.53	1.0
Manganese	µg/L	NA	NS	NS	NS	NS	1969	5980	1685	2880	1827	5980
Mercury	µg/L	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<.01	<0.1	<0.1
Nickel	µg/L	70	1.0	2.0	4.0	11	2.8	12	4.2	9.0	3.6	12
Silver	µg/L	1.4	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	µg/L	8.0	<5.0	<5.0	5.0	8.0	7.3	15	4.3	7	5.4	15
BTEXN												
Benzene	µg/L	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethyl Benzene	µg/L	80	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Toulene	µg/L	180	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
m-Xylene	µg/L	75	NS	NS	<2	<2	<2	<2	<2	<2	<2	<2

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Parameter	Units	Water Quality Objectives	Apr 2021		Nov/Dec 2024		Mar 2025		July 2025		All events	
			Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
o-Xylene	µg/L	350	NS	NS	<2	<2	<2	<2	<2	<2	<2	<2
p-Xylene	µg/L	200	NS	NS	<2	<2	<2	<2	<2	<2	<2	<2
Polycyclic aromatic hydrocarbons												
Anthracene	µg/L	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(a) pyrene	µg/L	0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	µg/L	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	µg/L	50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenanthrene	µg/L	0.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH												
TPH C10-C14	µg/L	600	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50
TPH C15-C28	µg/L	600	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100
TPH C29-C36	µg/L	600	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50
TPHC6-C9	µg/L	600	NS	NS	<20	<20	<20	<20	<20	<20	<20	<20
PFAS												
PFOS	µg/L	0.13	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PFOA	µg/L	220	<0.01	<0.01	0.094	0.52	0.053	0.22	0.053	0.23	0.072	0.52

Note:

NS. Not Sampled

Table 2-3 Previous surface water analytical results

Parameter	Units	Water Quality Objective	Nov/Dec 2024		Mar 2025		Overall	
			Average	Maximum	Average	Maximum	Average	Maximum
Field Parameters								
pH	-	7.0-8.5	7.01	8.63	7.23	7.52	7.20	8.63
Electrical conductivity	µS/cm	NA	357	739	258	617	304	739
Total suspended solids	mg/L	30	14.2	27	11	37	13	37
Turbidity	NTU	4	NS	NS	18.3	65	18.3	65
Dissolved oxygen	DO% saturation	80-100	NS	NS	NS	NS	NS	NS
Temperature	°C	NA	NS	NS	NS	NS	NS	NS
Environmental Indicators								
Ammonia nitrogen (NH3-N)	µg/L	20	61.7	220	38.6	140	49	220
Dissolved reactive phosphorous (PO4-P)	µg/L	10	9.2	20	6.4	10	7.8	20
Chlorophyll-a	µg/L	4	NS	NS	3.5	20	3.5	20
Biological oxygen demand	mg/L	NA	NS	NS	5.6	12	5.6	12
Total Recoverable Hydrocarbons	mg/L	10	<100	<100	<100	<100	<100	<100
Total nitrogen	µg/L	300	550	900	600	1600	580	1600
Total phosphorus	µg/L	30	71.7	220	45	140	220	57
E.coli	MNP/100ml	200	NS	NS	NS	NS	NS	NS
Enterococci	MNP/100ml	50	NS	NS	NS	NS	NS	NS
Metals								
Arsenic	µg/L	NA	1.5	5.0	1.0	2.0	1.2	5.0
Cadmium	µg/L	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (CrIII)	µg/L	27	NS	NS	<10	<10	<10	<10
Chromium (CrVI)	µg/L	4.4	NS	NS	<10	<10	<10	<10
Copper	µg/L	1.3	1.6	4.0	<1.0	<1.0	1.0	4.0
Iron	µg/L	NA	NS	NS	517	2550	517	2550
Lead	µg/L	4.4	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0
Manganese	µg/L	NA	NS	NS	68.3	300	68.3	300
Mercury	µg/L	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	µg/L	70	1.2	3.0	<1.0	<1.0	0.73	3.0
Silver	µg/L	1.4	NS	NS	<1.0	<1.0	<1.0	<1.0
Zinc	µg/L	8.0	27.8	64	18.9	87	23	87
BTEXN								
Benzene	µg/L	700	<1	<1	<1	<1	<1	<1
Ethyl Benzene	µg/L	80	<2	<2	<2	<2	<2	<2
Toluene	µg/L	180	2	7	<2	<2	<2	<2
m-Xylene	µg/L	75	<2	<2	<2	<2	<2	<2
o-Xylene	µg/L	350	<2	<2	<2	<2	<2	<2
p-Xylene	µg/L	200	<2	<2	<2	<2	<2	<2
Polycyclic aromatic hydrocarbons								
Anthracene	µg/L	0.01	<1	<1	<1	<1	<1	<1
Benzo(a) pyrene	µg/L	0.1	<1	<1	<1	<1	<1	<1
Fluoranthene	µg/L	1.0	<1	<1	<1	<1	<1	<1
Naphthalene	µg/L	50	<1	<1	<1	<1	<1	<1
Phenanthrene	µg/L	0.6	<1	<1	<1	<1	<1	<1
TPH								
TPH C10-C14	µg/L	600	<50	<50	<50	<50	<50	<50
TPH C15-C28	µg/L	600	<100	<100	<100	<100	<100	<100
TPH C29-C36	µg/L	600	<50	<50	<50	<50	<50	<50
TPH C6-C9	µg/L	600	<20	<20	<20	<20	<20	<20
PFAS								
PFOS	µg/L	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PFOA	µg/L	220	0.011	0.020	0.024	0.14	0.017	0.14

Note:

NS. Not Sampled

3. Methodology

The investigation work by Jacobs was undertaken in general accordance with the Environmental Monitoring Program (Jacobs, 2024). Departures from the program are discussed in **Section 3.3**.

The filed works for the investigation were undertaken on the 27th/28th October and 3rd of November.

3.1 Monitoring Locations

3.1.1 Groundwater monitoring

The locations of the groundwater monitoring wells are summarised in **Table 3-1** and displayed in **Figure 1 - Appendix A**. The distribution of groundwater wells across the site aims to facilitate detection of any potential groundwater contamination that may arise from the site operations, such as product leakage from storage tanks, spills during product transfer, or from general operations on site.

Table 3-1 Summary of groundwater monitoring wells

Location	Ground level elevation (mAHD)	Screen interval (m bgl)	Total Depth (m bgl)	Description
MW01	5.643	1.0 – 6.8	6.8	To assess groundwater quality at north-eastern corner
MW02	5.629	1.0 – 4.8	4.8	To assess groundwater quality at western boundary.
MW03	6.491	1.0 – 8.3	8.3	To assess groundwater quality at southern corner.
MW04	6.274	1.0 – 7.0	7.0	To assess groundwater quality at northeastern corner.
MW05	6.143	1.0 – 7.9	7.9	To assess groundwater quality at the northern corner.
MW06	5.759	1.0 – 5.5	5.5	To assess groundwater quality at the western boundary.

mbgl – metres below ground level

3.1.2 Surface water sampling

The surface water sampling locations are summarised in **Table 3-2** and displayed in **Figure 2 - Appendix A**. The spatial distribution of surface water sampling locations aims to identify contamination leaving entering and/or leaving the site.

Table 3-2 Summary of surface water sampling locations

Location	Description
SW01	To assess quality of water entering northern drain from northeastern Humeceptor and upgradient drain.
SW02	To assess water quality entering site from Vopak plot.

Location	Description
SW03	To assess quality of water entering southern swale.
SW04	To assess quality of runoff water from nearby hardstand areas.
SW05	To assess water quality entering northeastern drain discharged from northeastern industrial area.
SW06	To assess water quality before being discharged into the marine environment
SW07	To assess water pooling in southern swale.
SW08	To assess water draining from railway area into northern drain.

3.2 Investigation methodologies and timing

The methodology undertaken as part of the investigation were generally consistent with those detailed in the Environmental Monitoring Program (Jacobs, 2024). Departures from the program are discussed in **Section 3.3**.

As stated in the Appendix 2 Table 2 of the Environmental Approval groundwater and surface water monitoring is to be conducted on a quarterly basis, the schedule of the monitoring events was:

- Q1 – March – End of wet season
- Q2 – June – Middle of dry season
- Q3 – October – End of dry season/ beginning of wet season
- Q4 – January – Middle of wet season

3.3 Laboratory Analysis

Analytical laboratory testing of environmental samples was conducted by National Association of Testing Authorities (NATA) accredited laboratories ALS (primary) and Eurofins MGT (secondary).

The analytical schedule undertaken as part of this monitoring event is detailed in **Table 3-3**.

Table 3-3 Analytical schedule

Sample type	Number of locations	Analysis	No. of primary samples analysed
Groundwater	6	▪ pH, Electrical Conductivity (EC), Suspended Solids (TSS), Turbidity, Dissolved Oxygen (DO) ▪ Ammonia as NH₃, Total Nitrogen, Total Phosphorous, Dissolved Reactive Phosphate, Chlorophyll a, BOD ▪ TRH/BTEXN/PAH/ Metals ▪ Per-and Polyfluoroalkyl Substances (PFAS)	6

Sample type	Number of locations	Analysis	No. of primary samples analysed
Surface Water	8	- pH, Electrical Conductivity (EC), Suspended Solids, Turbidity, Dissolved Oxygen (DO) - Ammonia as NH₃, Total Nitrogen, Total Phosphorous, Dissolved Reactive Phosphate, Chlorophyll a, BOD - TRH/BTEXN/PAH/ Metals - Per-and Polyfluoroalkyl Substances (PFAS)	5 (3 locations were dry, refer to Section 2.4)

3.4 Investigation Departures

Based on the site conditions and constraints applied to the scope of works, there were several departures from the Environmental Monitoring Program (Jacobs, 2024), as noted below.

Table 3-4 Investigation departures

Scope Item	Deviation description	Impact to investigation
SW02, SW03 and SW07	During the surface water sampling SW02, SW03 and SW07 were dry, therefore no samples were collected from these locations	The potential for surface water not to be present during the dry season was identified in the EMP. The absence of surface water during dry season sampling events does not have an impact on the investigation and/or compliance reporting and is not considered to be a 'non-compliance'.

3.5 Water Quality Objectives

The below **Table 3-5** presents the adopted water quality objectives that were specified in the EMP.

Table 3-5 Water Quality Objectives

Parameter	Units	Surface water		Groundwater	
		Value	Frequency	Value	Frequency
Field Parameters					
pH	-	7.0-8.5 ¹	Quarterly	7.0-8.5 ¹	Quarterly
Electrical conductivity	µS/cm	NA	Quarterly	NA	Quarterly
Total suspended solids	mg/L	30 ¹	Quarterly	30 ¹	Quarterly
Turbidity	NTU	4	Quarterly	4	Quarterly
Dissolved oxygen	DO% saturation	80-100	Quarterly	80-100	Quarterly
Temperature	°C	NA	Quarterly	NA	Quarterly
Environmental Indicators ³					
Ammonia nitrogen (NH3-N)	mg/L	0.02	Quarterly	0.02	Quarterly
Dissolved reactive phosphorous (PO4-P)	mg/L	0.01	Quarterly	0.01	Quarterly
Chlorophyll-a	µg/L	4	Quarterly	4	Quarterly
Biological oxygen demand	mg/L	NA	Quarterly	NA	Quarterly
Total Recoverable Hydrocarbons	mg/L	10 ¹	Quarterly	10 ¹	Quarterly
Total nitrogen	mg/L	0.30	Quarterly	0.30	Quarterly
Total phosphorus	µg/L	0.03	Quarterly	0.03	Quarterly
E.coli	CFU/100ml	200	Quarterly	200	Quarterly
Enterococci	CFU/100ml	50	Quarterly	50	Quarterly
Metals ^{2,4}					
Arsenic	µg/L	NA	Quarterly	NA	Quarterly
Cadmium	µg/L	0.7	Quarterly	0.7	Quarterly
Chromium (CrIII)	µg/L	27	Quarterly	27	Quarterly

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Parameter	Units	Surface water		Groundwater	
		Value	Frequency	Value	Frequency
Chromium (CrVI)	µg/L	4.4	Quarterly	4.4	Quarterly
Copper	µg/L	1.3	Quarterly	1.3	Quarterly
Iron	µg/L	NA	Quarterly	NA	Quarterly
Lead	µg/L	4.4	Quarterly	4.4	Quarterly
Manganese	µg/L	NA	Quarterly	NA	Quarterly
Mercury	µg/L	0.4	Quarterly	0.4	Quarterly
Nickel	µg/L	70	Quarterly	70	Quarterly
Silver	µg/L	1.4	Quarterly	1.4	Quarterly
Zinc	µg/L	8.0	Quarterly	8.0	Quarterly
BTEXN^{2,4}					
Benzene	µg/L	700	Quarterly	700	Quarterly
Ethyl Benzene	µg/L	80	Quarterly	80	Quarterly
Toluene	µg/L	180	Quarterly	180	Quarterly
m-Xylene	µg/L	75	Quarterly	75	Quarterly
o-Xylene	µg/L	350	Quarterly	350	Quarterly
p-Xylene	µg/L	200	Quarterly	200	Quarterly
Polycyclic aromatic hydrocarbons^{2,4}					
Anthracene	µg/L	0.01	Quarterly	0.01	Quarterly
Benzo(a) pyrene	µg/L	0.1	Quarterly	0.1	Quarterly
Fluoranthene	µg/L	1.0	Quarterly	1.0	Quarterly
Naphthalene	µg/L	50	Quarterly	50	Quarterly
Phenanthrene	µg/L	0.6	Quarterly	0.6	Quarterly
TPH²					
TPH C10-C14	µg/L	600	Quarterly	600	Quarterly
TPH C15-C28	µg/L	600	Quarterly	600	Quarterly
TPH C29-C36	µg/L	600	Quarterly	600	Quarterly
TPHC6-C9	µg/L	600	Quarterly	600	Quarterly
PFAS²					

Parameter	Units	Surface water		Groundwater	
		Value	Frequency	Value	Frequency
PFOS	µg/L	0.13	Quarterly	0.13	Quarterly
PFOA	µg/L	220	Quarterly	220	Quarterly

Notes:

1. Values taken from Table 1 Appendix 2 of environmental approval EP2021/008 – 001
2. Parameters required by Table 2 Appendix 2 of environmental approval EP2021/008 – 002 for groundwater monitoring.
3. Guideline Values taken from Darwin Harbour Water Quality Objectives (DNRETAS, 2010)
4. Values taken from Australian & New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)

3.6 Quality Control

A QA/QC assessment was completed and is shown in **Appendix B**. The purpose of this QA/QC assessment is to identify any issues that need to be addressed to allow for accurate and precise data collection and does not address all Data Quality Objectives outlined in the EMP (this will be completed in the annual report).

Based on the review of data quality associated with this sampling event, the data quality was concluded to be suitable for the purposes of this assessment.

4. Results

4.1 Meteorology

Rainfall data was collected from the Darwin Airport weather station (station number 14015) (BOM, 2025). This weather station was selected due to being located near the site therefore it is representative of the site and the weather conditions experienced.

Rainfall and site condition information during sampling have been summarised in **Table 4-1**.

Table 4-1 Rainfall conditions

Sampling date	Rainfall on day of sampling (mm)	Rainfall prior (7-day lead up) (mm)	Conditions during sampling
27/10/25	0	0.8	Sunny and humid
28/10/25	0	0.8	
3/11/25	0	13.4	

4.2 Groundwater results

Groundwater sampling was conducted on the 28th and 29th of October 2025, this period is considered the end of the dry season/ beginning of the wet season.

4.2.1 Water quality parameters and field observations

The standing water level measurements, field parameters and observations are captured in **Table 4-2**.

Water quality parameters recorded across the site generally varied. In summary:

- Groundwater is acidic (varying from slightly acidic to very acidic).
- Groundwater at MW01, MW02 and MW05 is saline and at MW03, MW04 and MW06 is fresh.
- No obvious visual or olfactory indicators of contamination were noted.
- The inferred groundwater flow direction was calculated using groundwater elevations (from data loggers). The groundwater flow and direction is shown in **Figure 3 - Appendix C** and is compared against historical groundwater elevations and flow directions. The inferred groundwater flow direction for this monitoring event was in a north-easterly direction.

Table 4-2 Groundwater level, quality and observations

Location	Date	Standing Water Level (pre-purged)		Temp (°C)	pH	DO (mg/L)	EC (µS/cm)	Redox (mV)	Exceedance	Observations
		mbTOC	mAHD							
Water Quality Objective				NA	7.0 – 8.5	80-100 (%)	NA	NA		
MW01	28/10/25	2.765	3.410	32.7	6.26	0.16	10413	-137.9	Yes - pH	At MW01, pH was slightly acidic. Groundwater is saline (potential interaction with seawater). Groundwater was observed to be clear, with low suspended solids and turbidity, no sheen, no odour.
MW02	29/10/25	2.340	3.213	31.3	6.11	0.46	17147	-138.0	Yes - pH	At MW02, pH was slightly acidic. Groundwater is saline (potential interaction with seawater). Groundwater was observed to be Clear/cloudy - orange/brown, with moderate suspended solid and turbidity, no sheen, no odour.
MW03	28/10/25	3.217	4.172	32.0	5.08	0.84	1141	164.4	Yes - pH	At MW03, water was acidic and fresh. Groundwater was observed to be clear yellow, with low suspended solids and turbidity, no sheen, no odour.
MW04	28/10/25	3.062	3.128	33.8	5.18	0.92	1906	227.6	Yes - pH	At MW04, water was acidic and fresh. Groundwater was observed to be Clear/cloudy white, with moderate suspended solid and turbidity, no sheen, no odour.

Location	Date	Standing Water Level (pre-purged)		Temp (°C)	pH	DO (mg/L)	EC (µS/cm)	Redox (mV)	Exceedance	Observations
		mbTOC	mAHD							
MW05	29/10/25	4.535	2.511	33.4	3.08	1.2	23715	393.2	Yes - pH	At MW05, water was acidic and saline. Groundwater was observed to be clear, with low suspended solids and turbidity, no sheen, no odour.
MW06	29/10/25	1.760	3.904	33.7	3.72	1.91	973	312.0	Yes - pH	At MW06, water was acidic and fresh. Water was observed to be clear, with moderate suspended solids and turbidity, no sheen, no odour.

4.2.2 Analytical results

Laboratory analytical results for this monitoring event were tabulated and provided in **Appendix C** and historical results are tabulated in **Appendix F**. Screening of the results against the water quality objectives and baseline results identified several exceedances which are summarised in **Table 4-3** and shown in **Figures 4-1 to 4-11**.

- Dissolved metals (arsenic, chromium (III), copper, lead, nickel and zinc) were detected above the limit of reporting (LOR) in groundwater samples. The following samples exceeded the adopted guideline values:
 - Copper at MW03, MW04, MW05 and MW06.
 - MW06 for cadmium, lead, nickel and zinc.
- Several nutrients were detected, including ammonia nitrogen, total nitrogen, total phosphorus and reactive phosphorous above the adopted water quality objectives in most wells.
- E. coli concentrations above the LOR were identified at MW03 and MW06. The concentration at MW06 was above the adopted water quality objective. Enterococci concentrations were detected at MW01, MW03 and MW06, with concentrations at MW03 and MW06 above the adopted water quality objective.
- There were no detections of TRH at any of the wells.
- BTEXN and PAH were below the LOR in all groundwater samples collected.
- PFAS concentrations were detected in varying concentrations, with the highest concentrations noted in MW01, MW02 and MW06, but did not exceed the adopted water quality objective.

Table 4-3 Groundwater Laboratory Results

Parameter	Units	Water Quality Objective	Baseline Results ¹		MW01	MW02	MW03	MW04	MW05	MW06
			Average	Maximum						
Field Parameters										
pH	-	7.0-8.5	6.61	7.89	6.20	6.82	6.09	5.60	3.42	5.26
Electrical conductivity	µS/cm	NA	11627	60600	9,770	16,700	955	1,680	22,400	767
Total suspended solids	mg/L	30	166	805	NS	NS	NS	NS	NS	NS
Turbidity	NTU	4	141	465	62.1	590	10.3	48.3	9.5	12.8
Dissolved oxygen	DO%	80-100	NS	NS	NS	NS	NS	NS	NS	NS
Temperature	°C	NA	NS	NS	NS	NS	NS	NS	NS	NS
Environmental Indicators										
Ammonia nitrogen (NH3-N)	mg/L	0.02	2.74	13.1	1.15	13.0	0.03	<0.01	0.16	0.04
Dissolved reactive phosphorous (PO4-P)	mg/L	0.01	0.011	0.06	<0.01	<0.01	0.02	0.04	0.03	<0.01
Chlorophyll-a	µg/L	4	0.8	3	<1	<1	<1	<1	<1	<1
Biological oxygen demand	mg/L	NA	3.6	16	<2.0	3.0	<2.0	<2.0	<2.0	<2.0
Total Recoverable Hydrocarbons	mg/L	10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total nitrogen	mg/L	0.3	4.0	12.5	1.3	13.0	2.0	1.7	0.3	1.0
Total phosphorus	mg/L	0.03	0.17	1.29	<0.01	0.08	0.06	0.06	0.05	0.01
E.coli	CFU/100ml	200	10	48	<1.0	<1.0	6.0	<1.0	<1.0	1600
Enterococci	CFU/100ml	50	<1	<1	11	<1.0	54	<1.0	<1.0	640
Metals										
Arsenic	µg/L	NA	7.2	16	13	4.0	2.0	3.0	226	<1.0
Cadmium	µg/L	0.7	0.06	0.1	<0.1	<0.1	<0.1	<0.1	1.4	<0.1
Chromium (CrIII)	µg/L	27	<10	<10	<10	<10	<10	<10	10	<10
Chromium (CrVI)	µg/L	4.4	<10	<10	<10	<10	<10	<10	<10	<10
Copper	µg/L	1.3	70	1050	<1.0	<1.0	27	290	1470	2.0
Iron	µg/L	NA	20034	109000	NS	NS	NS	NS	NS	NS
Lead	µg/L	4.4	0.53	1.0	<1.0	<1.0	<1.0	<1.0	109	<1.0
Manganese	µg/L	NA	1827	5980	NS	NS	NS	NS	NS	NS
Mercury	µg/L	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	µg/L	70	3.6	12	<1.0	<1.0	3.0	7.0	99	2.0
Silver	µg/L	1.4	<1.0	<1.0	NS	NS	NS	NS	NS	NS
Zinc	µg/L	8.0	5.4	15	<5.0	<5.0	6.0	7.0	98	15
BTEXN										

Parameter	Units	Water Quality Objective	Baseline Results ¹		MW01	MW02	MW03	MW04	MW05	MW06
			Average	Maximum						
Benzene	µg/L	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethyl Benzene	µg/L	80	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toulene	µg/L	180	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
m-Xylene	µg/L	75	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	µg/L	350	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
p-Xylene	µg/L	200	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Polycyclic aromatic hydrocarbons										
Anthracene	µg/L	0.01	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a) pyrene	µg/L	0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	µg/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	µg/L	50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	µg/L	0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
TPH										
TPH C10-C14	µg/L	600	<50	<50	<50	<50	<50	<50	<50	<50
TPH C15-C28	µg/L	600	<100	<100	<100	<100	<100	<100	<100	<100
TPH C29-C36	µg/L	600	<50	<50	<50	<50	<50	<50	<50	<50
TPHC6-C9	µg/L	600	<20	<20	<20	<20	<20	<20	<20	<20
PFAS										
PFOS	µg/L	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PFOA	µg/L	220	0.072	0.52	0.29	0.02	<0.01	<0.01	<0.01	0.02

NS – Not Sampled

¹ – Outlier results recorded at MW05 in the Pre-Operations monitoring were excluded from the baseline average/maximum.

Figure 4-1 Groundwater Results - pH

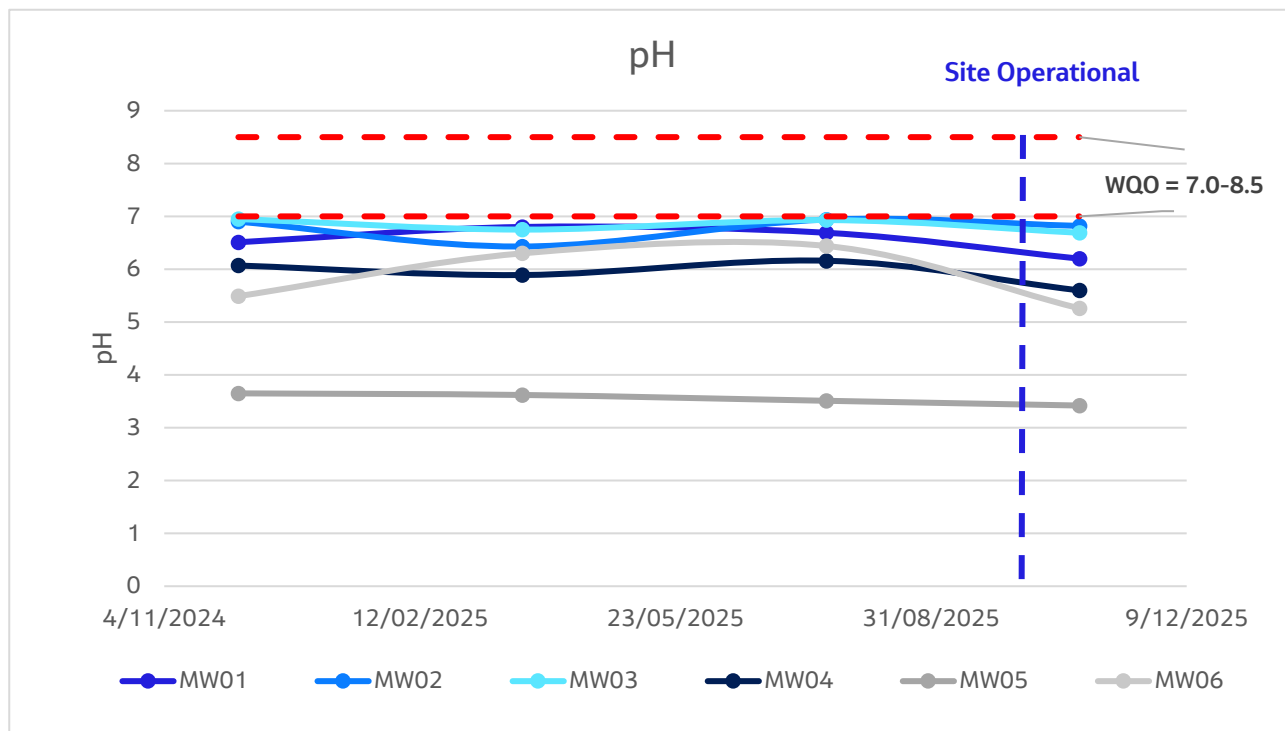


Figure 4-2 Groundwater Results – Ammonia as N

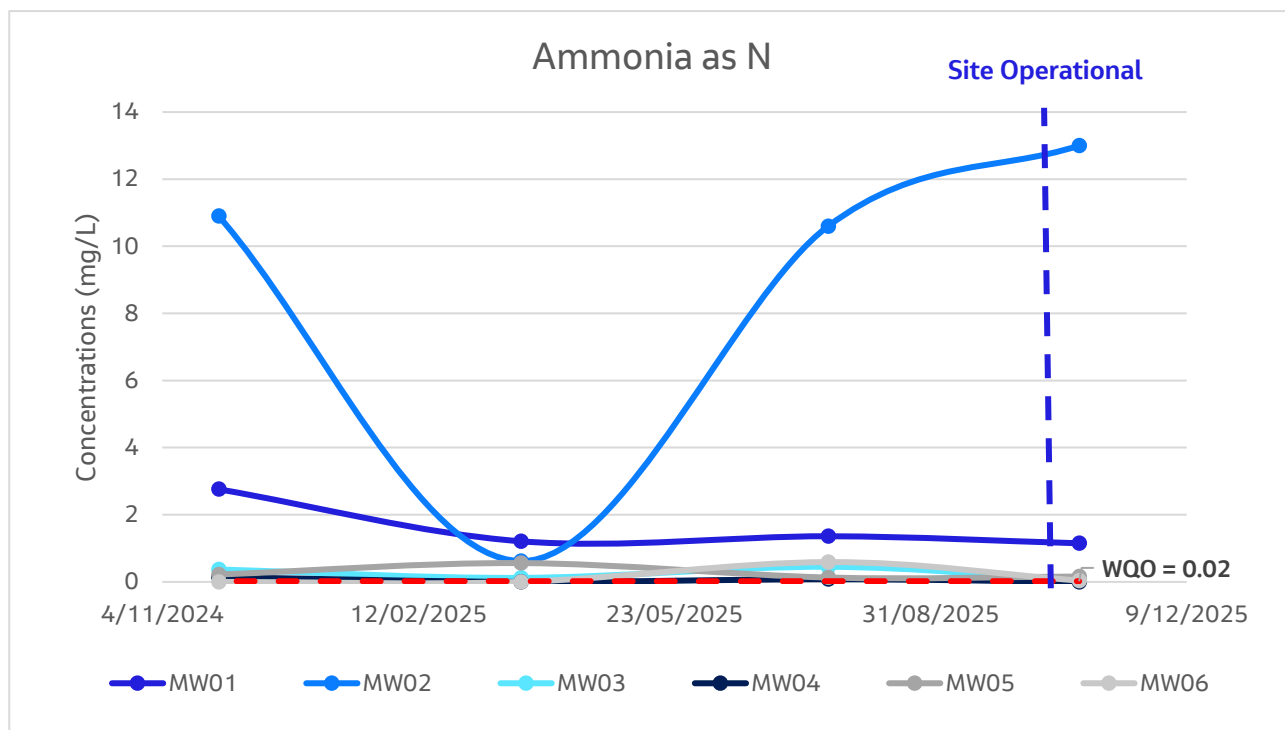


Figure 4-3 Groundwater Results – Total Nitrogen

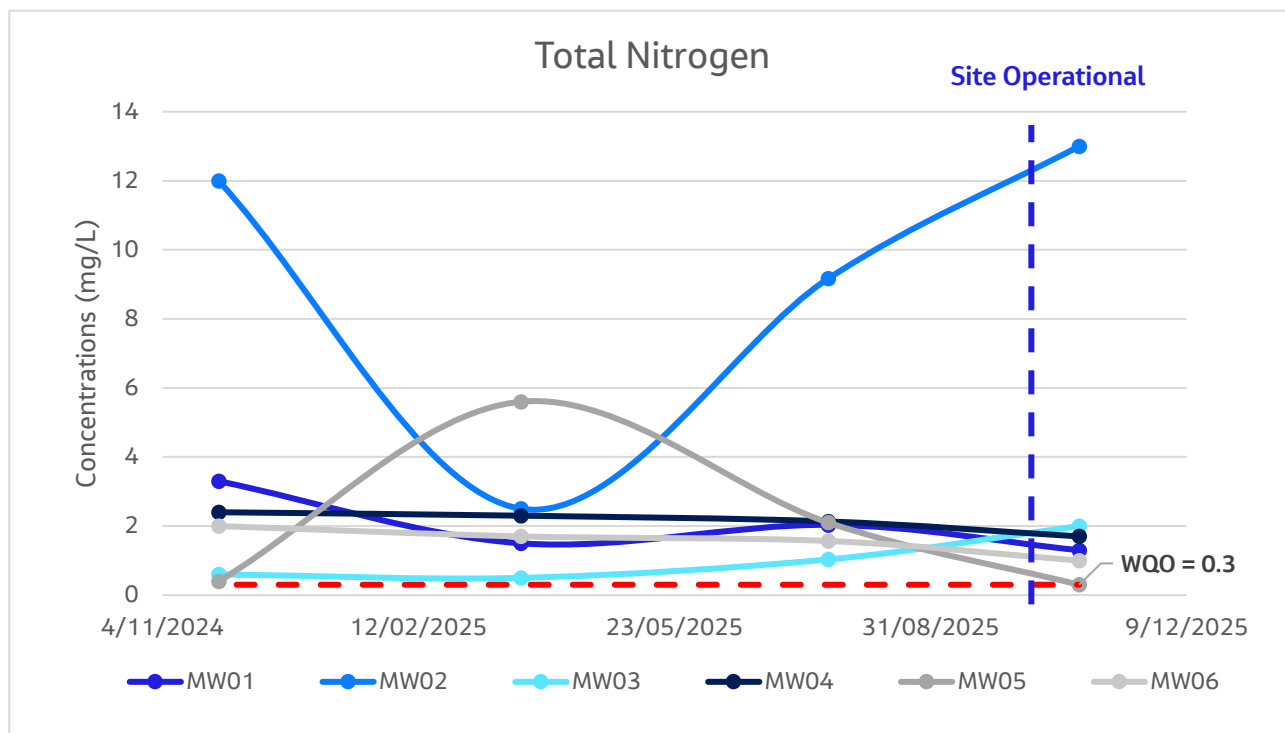


Figure 4-4 Groundwater Results – Total Phosphorous

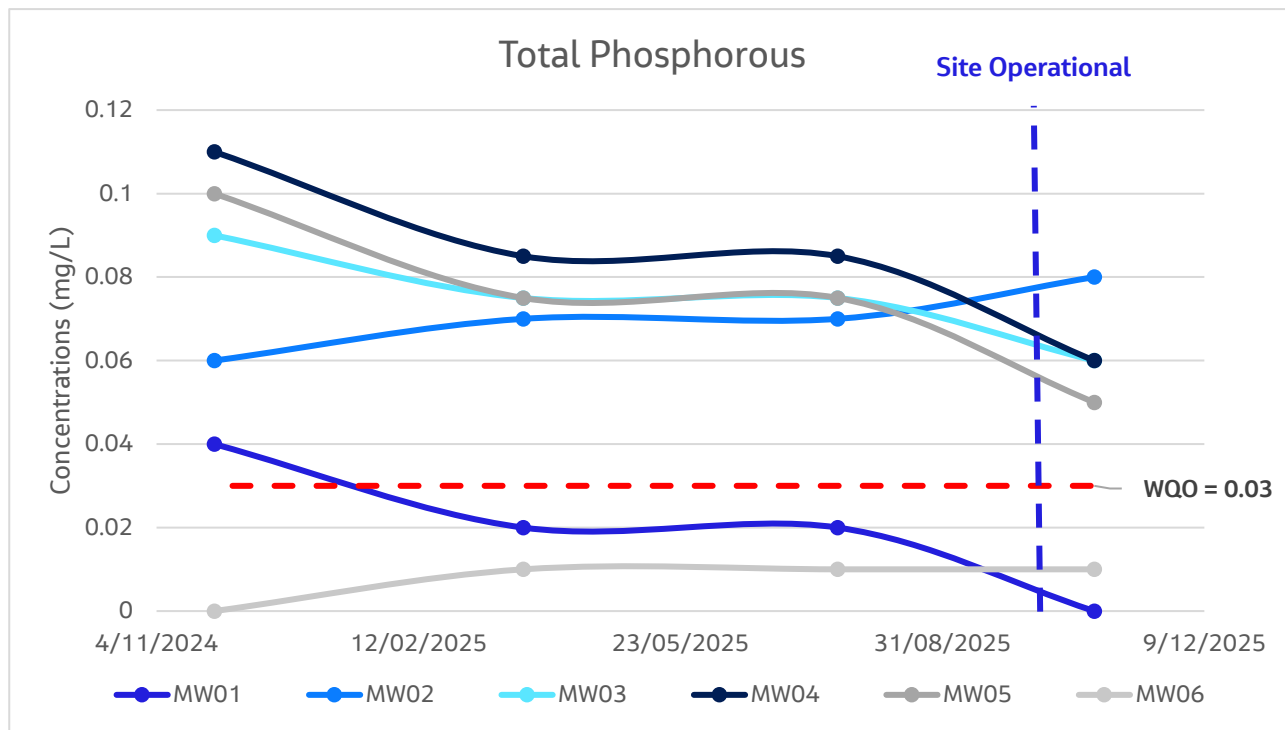


Figure 4-5 Groundwater Results – Cadmium

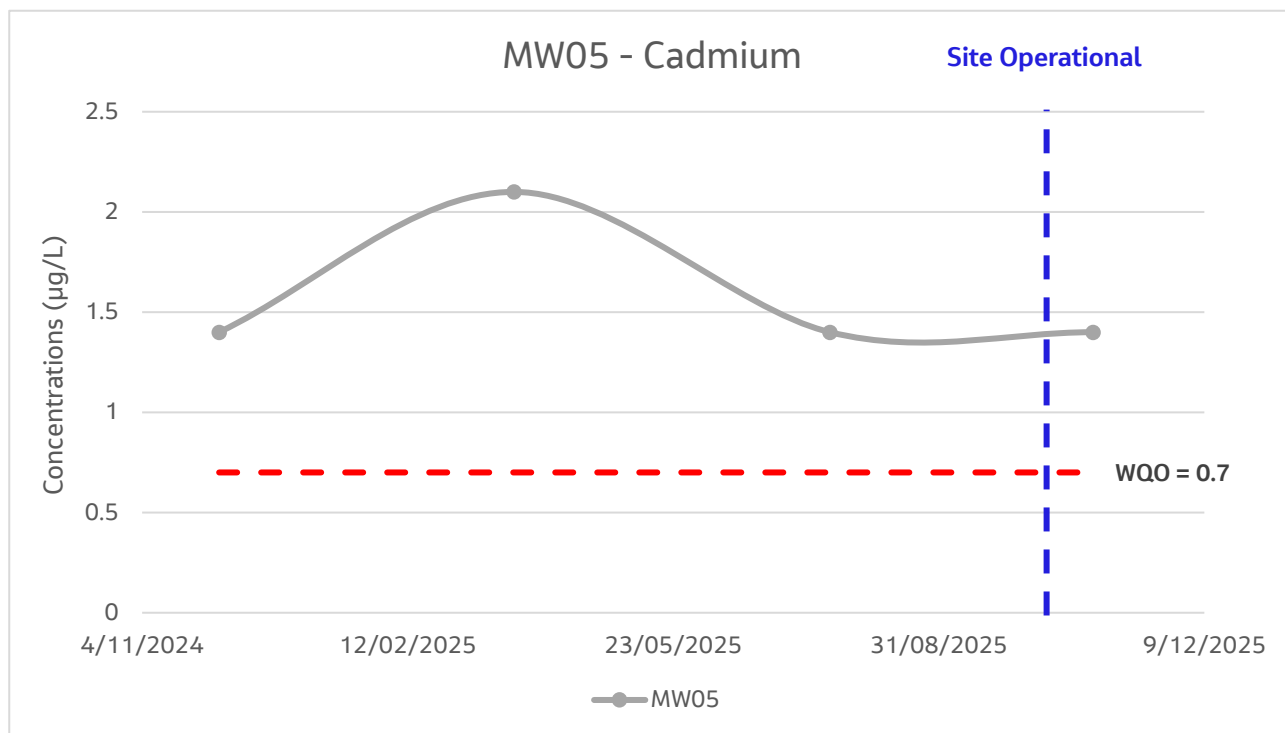


Figure 4-6 Groundwater Results - Copper

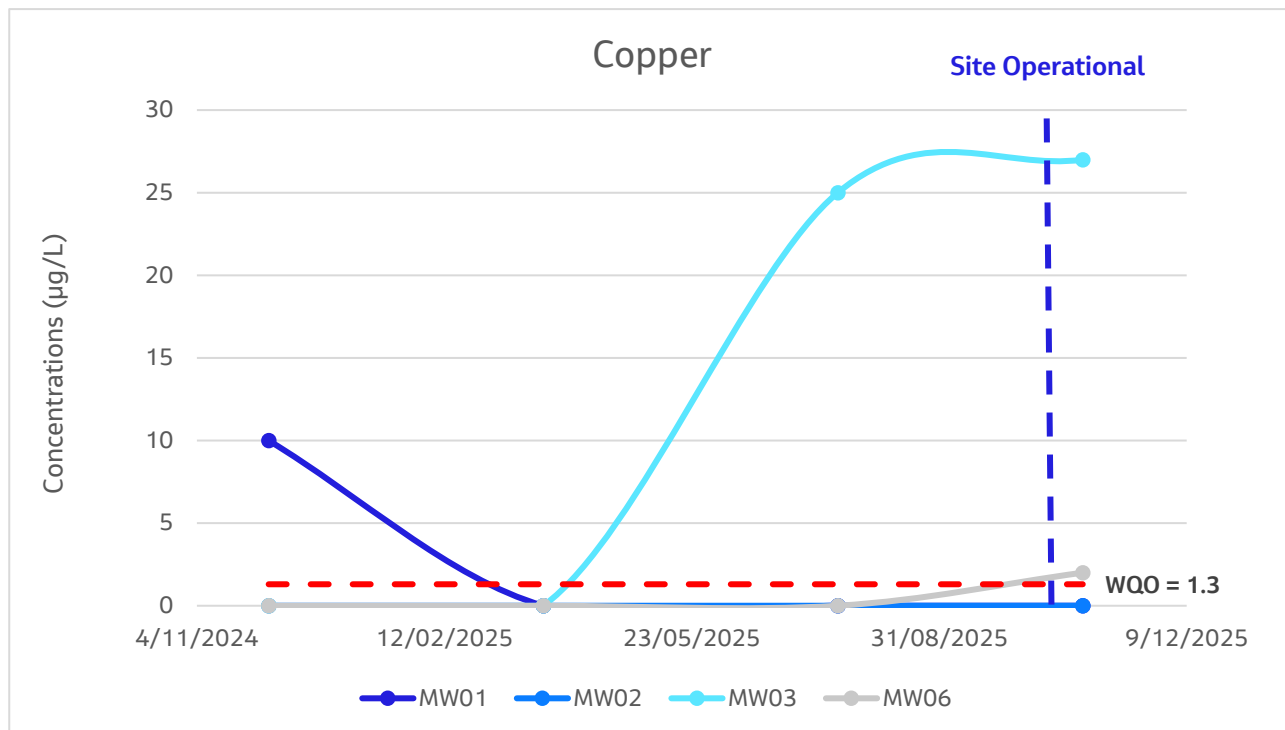


Figure 4-7 Groundwater Results – Copper

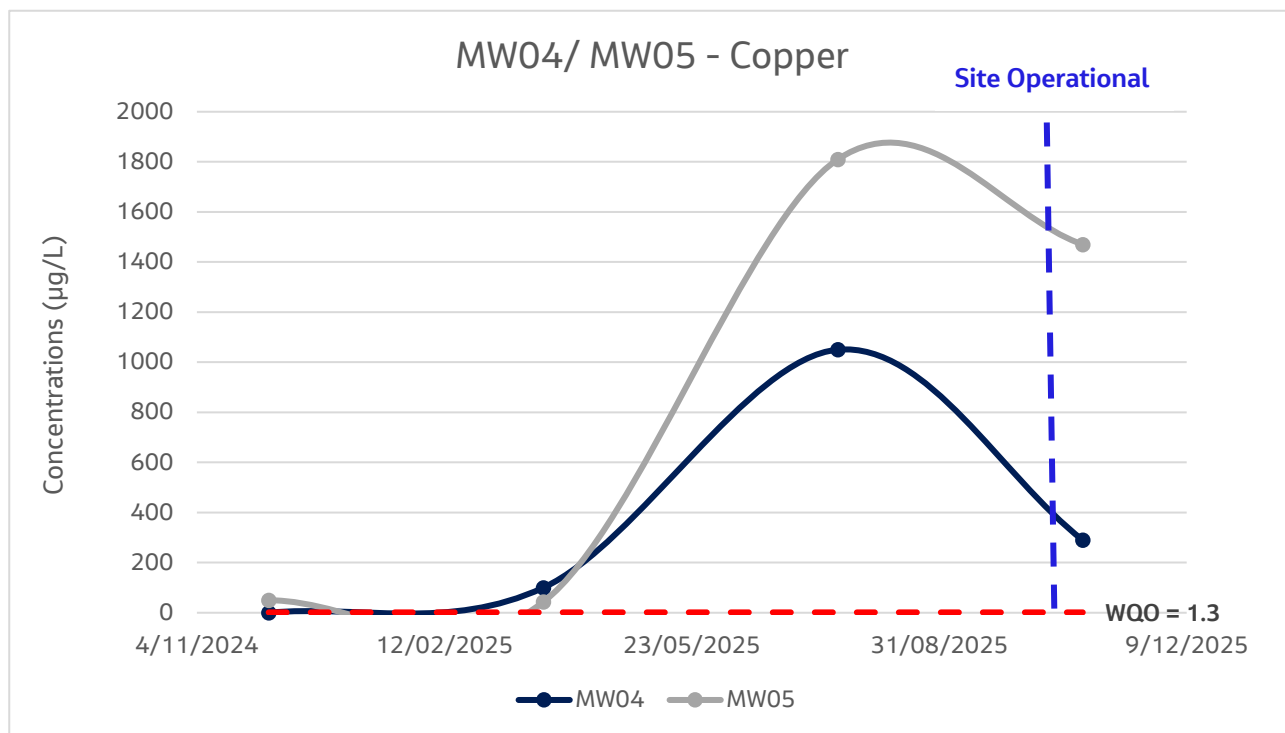


Figure 4-8 Groundwater Results - Lead

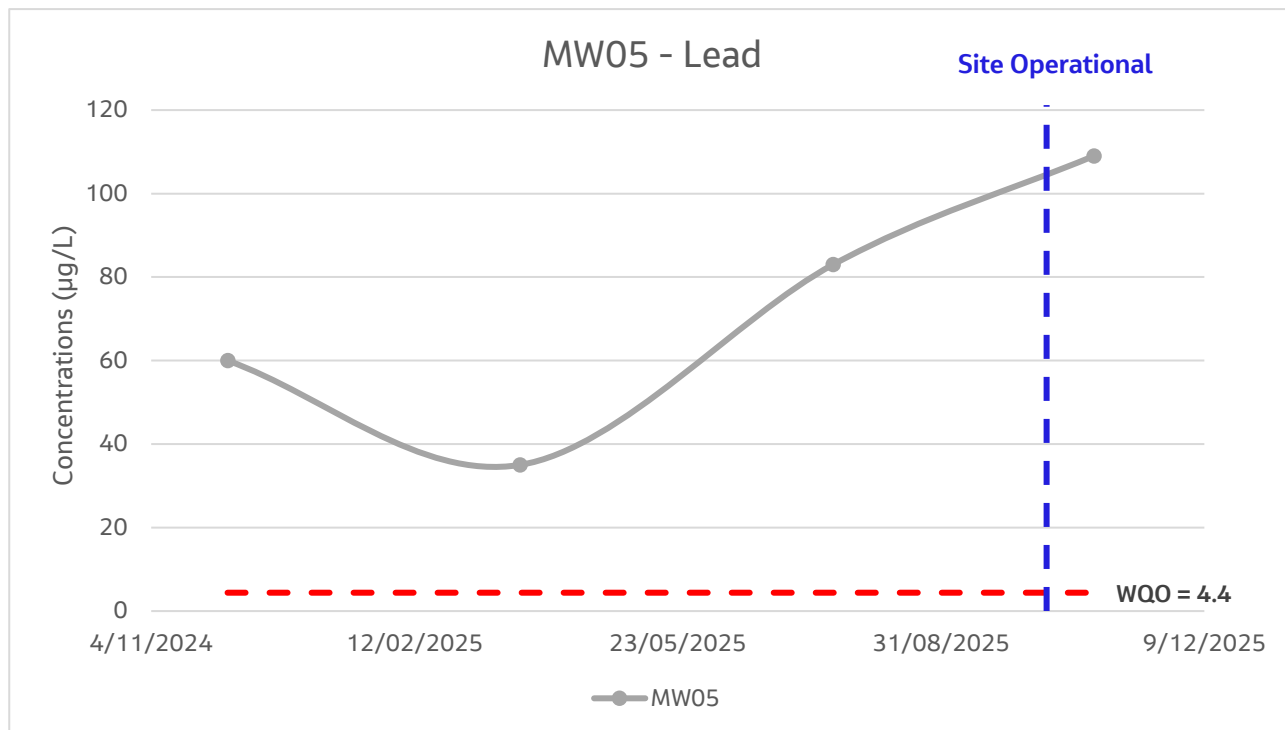


Figure 4-9 Groundwater Results - Nickel

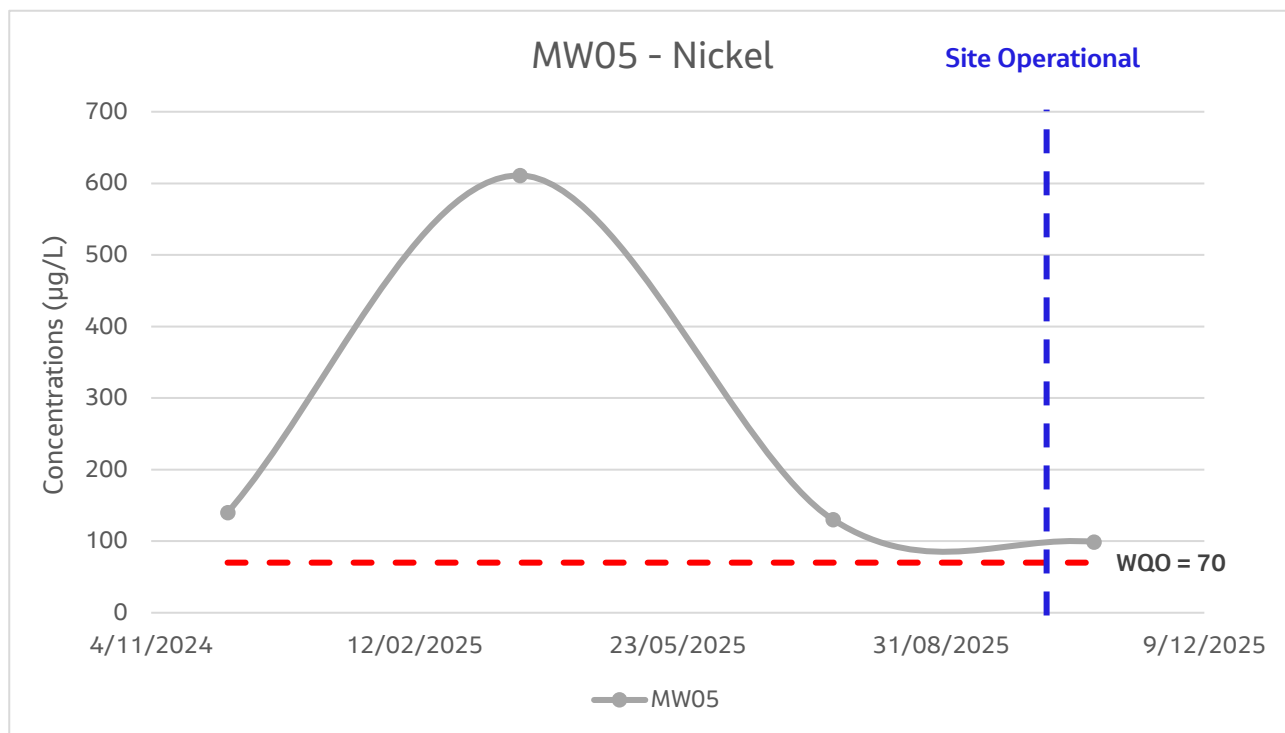


Figure 4-10 Groundwater Results - Zinc

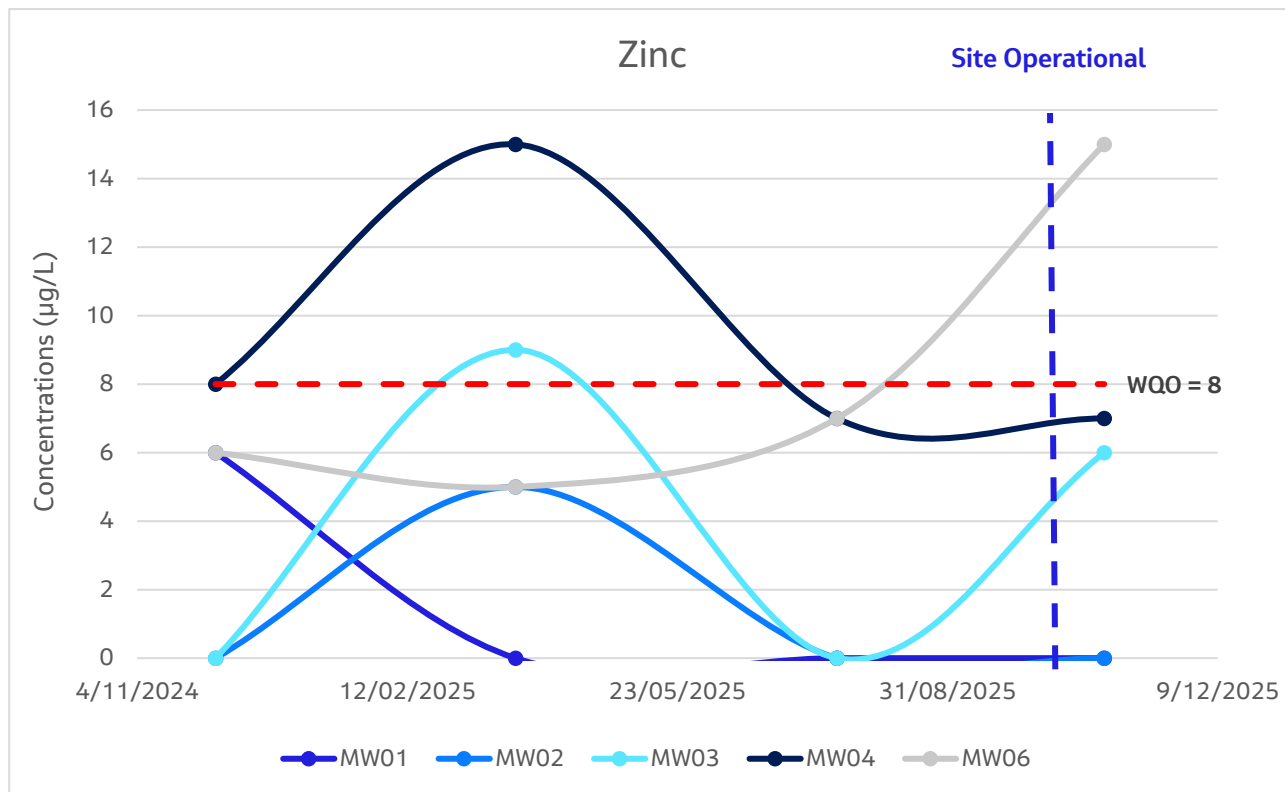
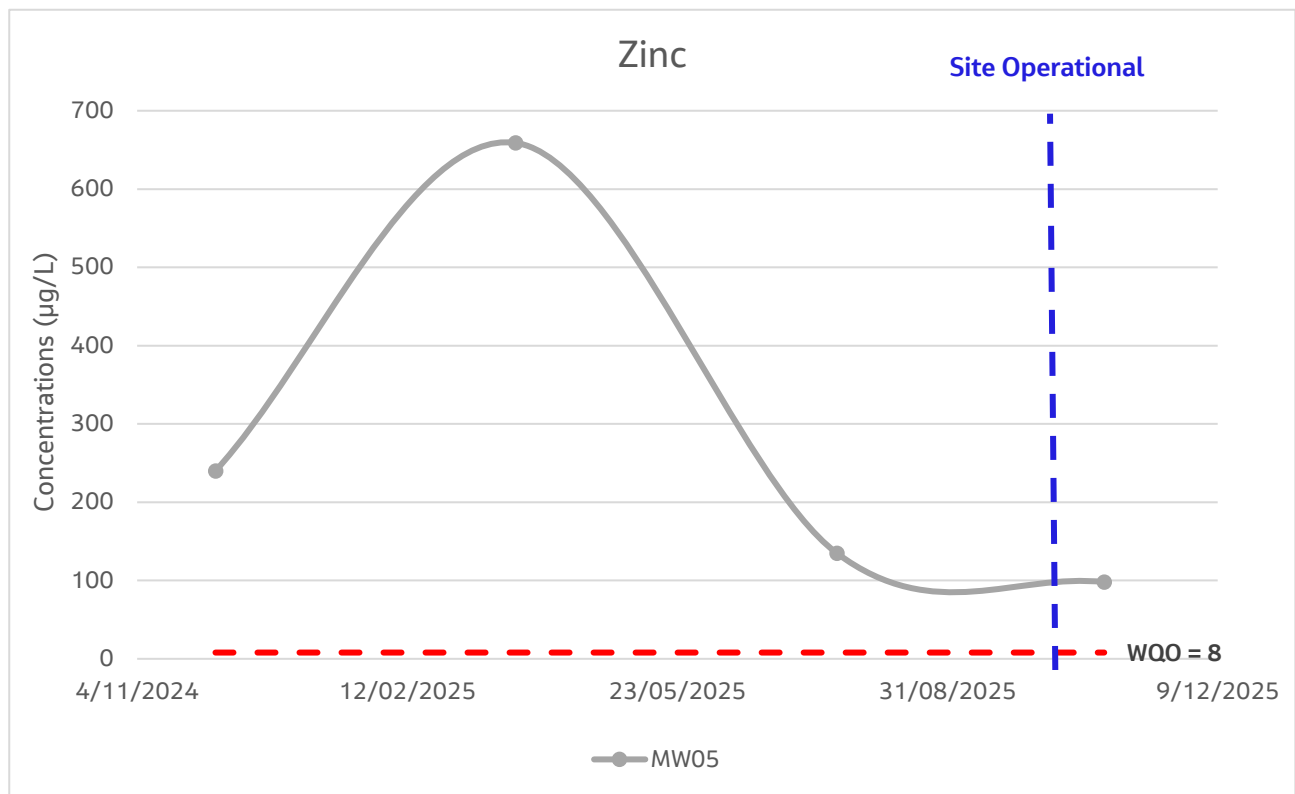


Figure 4-11 Groundwater Results – Zinc



4.3 Surface water quality monitoring

Surface water sampling was conducted on the 29th of October and 3rd of November.

4.3.1 Water quality parameters and field observations

Water quality parameters recorded at surface water monitoring locations are presented in **Table 4-4**.

Based on the recorded measurements, the following observations were recorded.

- pH measured across the site was generally slightly acidic.
- Electrical conductivity (EC) ranged from 335 $\mu\text{S}/\text{cm}$ (SW04) to 757 (SW06). The relatively low EC is likely representative of relatively recent rainwater.
- Redox potential ranged from -252.2 (SW05) to 218.5 (SW08) and dissolved oxygen from 0 (SW05) to 4.66 (SW04). These are suggestive of oxidising conditions at all locations with the exception of SW05.
- A bacterial sheen (potentially iron fixing) was observed at location SW04 and SW05.
- SW02, SW03 and SW07 were dry during the sampling event.

Table 4-4 Surface water quality parameters

Location	Date	Temp (°C)	pH	DO (mg/L)	EC (µS/cm)	Redox (mV)	Exceedance	Observations
Water Quality Objective		NA	7.0 – 8.5	80-100 (%)	NA	NA		
SW01	29/10/25	34.6	6.67	2.92	360	213.2	Yes - pH	Clear/ slightly brown, low flow, no sheen, no odour
SW02	29/10/25	-	-	-	-	-	-	Dry
SW03	3/11/25	-	-	-	-	-	-	Dry
SW04	29/10/25	32.1	8.77	4.66	335	132.3	Yes - pH	Clear/ slightly brown, no flow, algal growth, organic sheen, no odour
SW05	3/11/25	29.0	6.62	0	548	-252.2	Yes - pH	Clear/ slightly brown, no flow, algal growth, organic sheen, no odour
SW06	3/11/25	29.2	6.83	2.18	757	127.8	Yes - pH	Clear/slightly cloudy, no/low flow, no sheen, no odour
SW07	3/11/25	-	-	-	-	-	-	Dry
SW08	29/11/25	30.6	6.43	2.57	432	218.5	Yes - pH	Clear/ slightly brown, no flow, no sheen, no odour

4.3.2 Analytical results

Laboratory analytical results for this monitoring event were tabulated and provided in **Appendix C** and historical results are tabulated in **Appendix F**. Screening of the results against the adopted water quality objectives and baseline results identified several exceedances which are summarised in **Table 4-5**.

- There were elevated detections of zinc and copper across the site. Zinc was reported above water quality objective at every location, while copper was above the at SW01, SW04 and SW08.
- There were elevated detections of ammonia nitrogen, total nitrogen and total phosphorus. All locations exceeded the water quality objective for total nitrogen, while MW05 and MW06 reported ammonia nitrogen and total phosphorous concentrations above the objective value. Chlorophyll *a* concentrations were reported above the water quality objective at SW06.
- E. coli and enterococci concentrations were reported above the LOR at all locations. The concentrations of both analytes exceeded the water quality objective at SW01, SW05 and SW08.
- TRH concentrations were reported below the LOR at all locations with the exception of SW05. The concentration reported at SW05 was below the water quality objective.
- BTEXN and PAH were below the LOR in all surface water samples collected.
- PFAS concentrations were detected in varying concentrations, with the highest concentrations noted in SW05 and SW06, but did not exceed the water quality objectives.

Table 4-5 Surface Water laboratory results

Parameter	Units	Water Quality Objectives	Baseline Results		SW01	SW02 ¹	SW03 ¹	SW04	SW05	SW06	SW07 ¹	SW08
			Average	Maximum								
Field Parameters												
pH	-	7.0-8.5	7.20	8.63	6.08	NS	NS	6.22	7.04	7.31	NS	6.00
Electrical conductivity	µS/cm	NA	304	739	279	NS	NS	232	494	710	NS	338
Total suspended solids	mg/L	30	13	37	NS	NS	NS	NS	NS	NS	NS	NS
Turbidity	NTU	4	18.3	65	35.6	NS	NS	22.5	8.2	8.8	NS	37.2
Dissolved oxygen	DO%	80-100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Temperature	°C	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Environmental Indicators												
Ammonia nitrogen (NH3-N)	mg/L	0.02	49	220	<0.01	NS	NS	0.02	0.08	0.03	NS	0.01
Dissolved reactive phosphorous (PO4-P)	mg/L	0.01	7.8	20	<0.01	NS	NS	<0.01	<0.01	<0.01	NS	<0.01
Chlorophyll-a	µg/L	4	3.5	20	<1.0	NS	NS	4.0	1.0	12	NS	<1.0
Biological oxygen demand	mg/L	NA	5.6	12	<2.0	NS	NS	2.0	11	5.0	NS	2.0
Total Recoverable Hydrocarbons	mg/L	10	<0.1	<0.1	<0.1	NS	NS	<0.1	0.21	<0.1	NS	<0.1
Total nitrogen	mg/L	0.3	0.58	1.6	0.6	NS	NS	1.0	1.3	0.6	NS	0.8
Total phosphorus	mg/L	0.03	0.22	0.06	0.02	NS	NS	0.03	0.33	0.06	NS	0.03
E.coli	CFU/100ml	200	NS	NS	570	NS	NS	2.0	220	150	NS	6,100
Enterococci	CFU/100ml	50	NS	NS	1,500	NS	NS	2.0	1,800	5.0	NS	5,500
Metals												
Arsenic	µg/L	NA	1.2	5.0	<1.0	NS	NS	<1.0	2.0	4.0	NS	<1.0
Cadmium	µg/L	0.7	<0.1	<0.1	<0.1	NS	NS	<0.1	<0.1	<0.1	NS	<0.1
Chromium (CrIII)	µg/L	27	<10	<10	<10	NS	NS	<10	<10	<10	NS	<10
Chromium (CrVI)	µg/L	4.4	<10	<10	<10	NS	NS	<10	<10	<10	NS	<10
Copper	µg/L	1.3	1.0	4.0	3.0	NS	NS	4.0	<1.0	<1.0	NS	3.0
Iron	µg/L	NA	517	2550	NS	NS	NS	NS	NS	NS	NS	NS
Lead	µg/L	4.4	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
Manganese	µg/L	NA	68.3	300	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	µg/L	0.4	<0.1	<0.1	<0.1	NS	NS	<0.1	<0.1	<0.1	NS	<0.1
Nickel	µg/L	70	0.73	3.0	<1.0	NS	NS	<1.0	2.0	2.0	NS	<1.0
Silver	µg/L	1.4	<1.0	<1.0	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	µg/L	8.0	23	87	57	NS	NS	20	9.0	17	NS	69
BTEXN												

Parameter	Units	Water Quality Objectives	Baseline Results		SW01	SW02 ¹	SW03 ¹	SW04	SW05	SW06	SW07 ¹	SW08
			Average	Maximum								
Benzene	µg/L	700	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
Ethyl Benzene	µg/L	80	<2.0	<2.0	<2.0	NS	NS	<2.0	<2.0	<2.0	NS	<2.0
Toulene	µg/L	180	<2.0	<2.0	<2.0	NS	NS	<2.0	<2.0	<2.0	NS	<2.0
m-Xylene	µg/L	75	<2.0	<2.0	<2.0	NS	NS	<2.0	<2.0	<2.0	NS	<2.0
o-Xylene	µg/L	350	<2.0	<2.0	<2.0	NS	NS	<2.0	<2.0	<2.0	NS	<2.0
p-Xylene	µg/L	200	<2.0	<2.0	<2.0	NS	NS	<2.0	<2.0	<2.0	NS	<2.0
Polycyclic aromatic hydrocarbons												
Anthracene	µg/L	0.01	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
Benzo(a) pyrene	µg/L	0.1	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
Fluoranthene	µg/L	1.0	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
Naphthalene	µg/L	50	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
Phenanthrene	µg/L	0.6	<1.0	<1.0	<1.0	NS	NS	<1.0	<1.0	<1.0	NS	<1.0
TPH												
TPH C10-C14	µg/L	600	<50	<50	<50	NS	NS	<50	<50	<50	NS	<50
TPH C15-C28	µg/L	600	<100	<100	<100	NS	NS	<100	220	<100	NS	<100
TPH C29-C36	µg/L	600	<50	<50	<50	NS	NS	<50	<50	<50	NS	<50
TPHC6-C9	µg/L	600	<20	<20	<20	NS	NS	<20	<20	<20	NS	<20
PFAS												
PFOS	µg/L	0.13	<0.01	<0.01	<0.01	NS	NS	<0.01	<0.01	<0.01	NS	<0.01
PFOA	µg/L	220	0.017	0.14	<0.01	NS	NS	<0.01	0.01	0.02	NS	<0.01

NS – Not Sampled
¹ – Location dry during sampling event

5. Discussion

5.1 Groundwater

Groundwater levels were generally higher than those recorded in the dry season reflective of the incoming wet season and rise of groundwater levels due to rainfall recharging the local aquifer. The inferred groundwater flow direction during the monitoring event is in a north-easterly direction. pH indicates the water is slightly acidic, with MW05 representing an outlier of 3.08, this outlier was identified in the Pre-Operation Environmental Investigation (Jacobs, 2025). Field pH at MW06 was 3.90, this is significantly lower than what had been recorded at this location previously and what was reported by the laboratory. As such this may represent an error with the water quality meter. Groundwater at MW01, MW02 and MW05 appear to be relatively saline while at MW03, MW04 and MW06 it appears to be comparatively fresh (likely representing a greater interaction with surface water).

Several nutrient analytes were detected, including reactive phosphorous, ammonia nitrogen, total nitrogen and total phosphorous. The reported nutrient concentrations were potentially indicative of natural biological processes occurring around the site considering its estuarine nature and the potential for the surrounding mangrove areas to act as a nutrient sink. Similar concentrations were reported in the Pre-Operations Report (Jacobs, 2025).

E. coli and Enterococci were detected above LOR at several locations (and exceeded water quality objective at two locations). There is no known on site source for microbiological contamination (no septic tanks/ sewerage lines in the proximity of the wells), however frogs have been noted living in the gatic/stick up well casings. It is possible cross-contamination from frog faeces has resulted in the elevated concentrations; however, it is unlikely due to the sites operations.

Arsenic, copper, nickel and zinc were regularly detected across the site during this monitoring event, with copper consistently recorded above the water quality objective. In general, the copper detections are within the historical range of concentrations outlined in the Pre-Operations Report (Jacobs, 2025). MW05 reported exceedances to the cadmium, copper, lead, nickel and zinc water quality objective. As noted in the Pre-Operations Report, the low pH at MW05 (potentially due to the lithology at this location) results in the increased solubility of metals, which would likely explain its elevated metals concentrations.

There were no detections of any hydrocarbon compounds in groundwater above the LOR during this monitoring event.

PFAS concentrations were detected above the LOR at several locations, however no location exceeded the adopted water quality objectives. The locations and concentrations of the detection are in line with those reported in the Pre-Operations Report (Jacobs, 2025) and are likely due to offsite contaminating activities.

5.2 Surface water

There was minimal rain during the surface water sampling resulting in several location being dry and mostly stagnant water at others. The surface water sampled was typically considered to be freshwater with pH ranging from 6.43 to 8.77 and electrical conductivity from 335 $\mu\text{S}/\text{cm}$ to 757 $\mu\text{S}/\text{cm}$.

Nutrients (including ammonia nitrogen, total nitrogen and total phosphorus) were regularly detected above the adopted water quality objectives during the sampling event. In general, algal growth was identified at monitoring locations, this indicates natural organic material such as leaf litter or debris is washing into the drains and undergoing decomposition.

E. coli and Enterococci were detected above LOR at all locations. There is no known on site source for microbiological contamination on site. The detection of the contamination at all the sampling locations suggests that is present in the environment around the site and is not originating from site.

Zinc concentrations were reported above the adopted water quality objectives at all locations and copper concentrations were reported above at three locations. The concentrations recorded are in line with the concentrations presented in the Pre-Operations Report (Jacobs, 2025) and are likely to be naturally occurring.

TRH was detected at SW05 above the LOR. This location represents water entering site from the eastern industrial area, as such the contamination is not a result of site operations. There were no detections of hydrocarbons above LOR at any other site.

There were no detections of PFAS compounds above the adopted water quality objectives, however there were detections of several PFAS compounds above the LOR. The concentrations detected are in line with those reported in the Pre-Operations Report (Jacobs, 2025) and represent contamination entering and subsequently leaving the site from the eastern industrial area.

6. Conclusion and recommendations

6.1 Groundwater

General groundwater quality is reflective of the natural background conditions. Several nutrient concentrations including ammonia nitrogen, total phosphorous, total nitrogen and reactive phosphorous are above the adopted water quality objectives. These nutrient detections are in line with those reported in the Pre-Operations Report (Jacobs, 2025) and are believed to be indicative of natural occurring concentrations. It is uncertain what has caused elevated concentrations of e. coli and enterococci, however it is unlikely due to site operations.

Copper concentrations detected above the adopted water quality objective are in line with historic sampling and are likely due to background conditions. Elevated levels of cadmium, copper, lead, nickel and zinc detected at MW05 are likely due to the acidic conditions at this location and are not attributable to operational activities. Hydrocarbons were not detected, suggesting no fuel leaks/spills have occurred/breached containment from the site.

PFAS in groundwater did not exceed the adopted water quality objectives, but elevated concentrations were noted. It is understood that this contamination is not due to site activities.

6.2 Surface water

Nutrient concentrations (including ammonia nitrogen, total nitrogen and total phosphorus) were reported above the adopted water quality objectives. In general, algal growth was identified at monitoring locations, this indicates natural organic material such as leaf litter or debris is washing into the drains and undergoing decomposition, likely resulting in the elevated nutrient concentrations. E. coli and enterococci detection were noted in all samples, it is uncertain what has caused these detections, however it is unlikely due to site operations.

Zinc concentrations were reported above the water quality objective at every location. There were also several copper exceedances recorded. This is in line with historical monitoring and is likely representative of background conditions.

6.3 Recommendations

It is proposed that site-specific water quality objectives are derived, specifically targeting the following:

- **Nutrients** – Ammonia nitrogen, total nitrogen and total phosphorous in both groundwater and surface water.
- **Metals** – Zinc in surface water and copper in groundwater.

The Australian and New Zealand Guidelines for Marine and Fresh Water Quality (ANZG, 2024) outline several possible methodologies for deriving site-specific water quality objectives, one method being adopting the 80th percentile of results from a reference site (in this case the baseline data). This methodology could be applied to this site, however consideration for seasonal variability may need to be made.

The next monitoring events will compromise:

Groundwater: Mid-wet season (January 2026)

Surface Water: Mid-wet season (January 2026)

7. References

Australian and New Zealand Governments and Australian State and Territory Governments – Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Water Quality Guidelines) 2018 (ANZWQG, 2018)

Australian Standard, 2005, Guide to the investigation and sampling of site with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, Reference no. AS4482.1 (AS4482.1, 2005)

Australian Standard, 1999, Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile Substances, Reference no. AS4482.2, (AS4482.2, 1999)

AS/NZS 5667.11:1998 Water Quality – Guidance on Sampling Groundwaters (AS/NZS 5667.11, 1998)

Bureau of Meteorology (BoM), (2025). Darwin Airport, Northern Territory, September 2024 Daily Weather Observations, Available at [Darwin Airport, NT – Daily Rainfall](#)

Friebel, E & Nadebaum, P 2011, CRC Care Technical Report No.10, Health screening levels for petroleum hydrocarbons in soil and groundwater (Friebel, E & Nadebaum, P, 2011)

Heads of EPA, 2020, PFAS National Environmental Management Plan –Version 2.0, (PFAS NEMP, 2020)

Jacobs, 2024, Project Caymus - Environmental Monitoring Program, IW272400-NP-EMP-0001_Rev2

Jacobs, 2025 Project Caymus – Pre-Operations Environmental Investigation, IW272400-NP-RPT-0001_REVO

National Environment Protection (Assessment of Site Contamination) Measure 1999, as revised 2013 (NEPM, 2013)

National Health and Medical Research Council (2019) Guidance on Per and Polyfluoroalkyl substances (PFAS) in Recreational Water for protection of marine ecosystems (NHMRC, 2019)

Northern Territory Environment Protection Authority (June 2017) Northern Territory Contaminated Land Guideline, Version 1.0. (NT EPA, 2017)

Appendix A. Figures

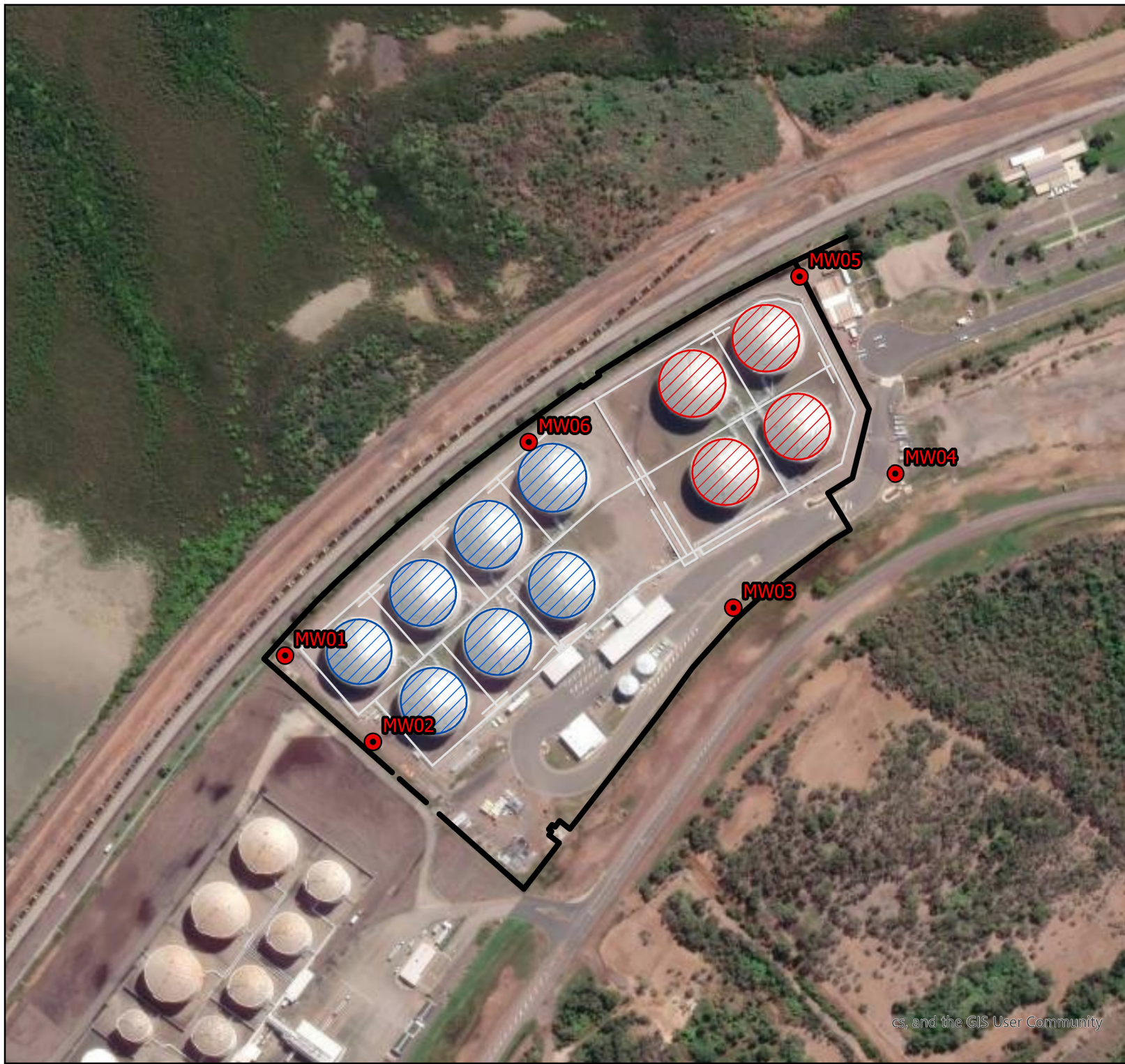


Figure 1: Groundwater Sampling Locations

Legend

Fuel Type

 JP-5

 Jet A1

 Bund Wall

 Site Fence

 Ground Water Monitoring Wells

N



Kilometers

0 0.04 0.08 0.16 0.24



cs, and the GIS User Community

Jacobs

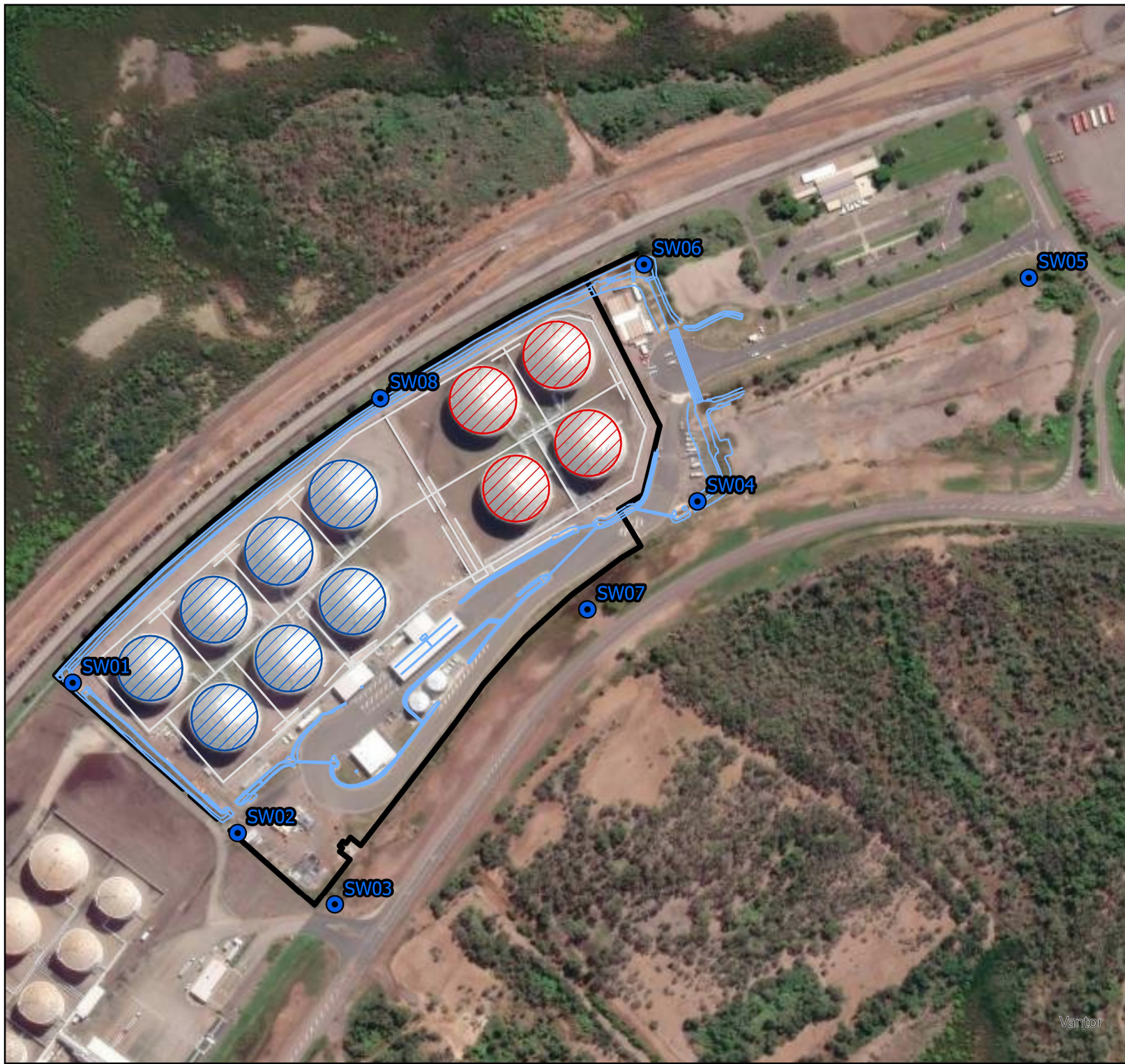


Figure 2: Surface Water Sampling Locations

Legend

● Surface Water Sampling Locations

Fuel Type

JP-5

Jet A1

Bund Wall

Drain

Site Fence

N



Kilometers

0 0.04 0.08 0.16 0.24



Jacobs

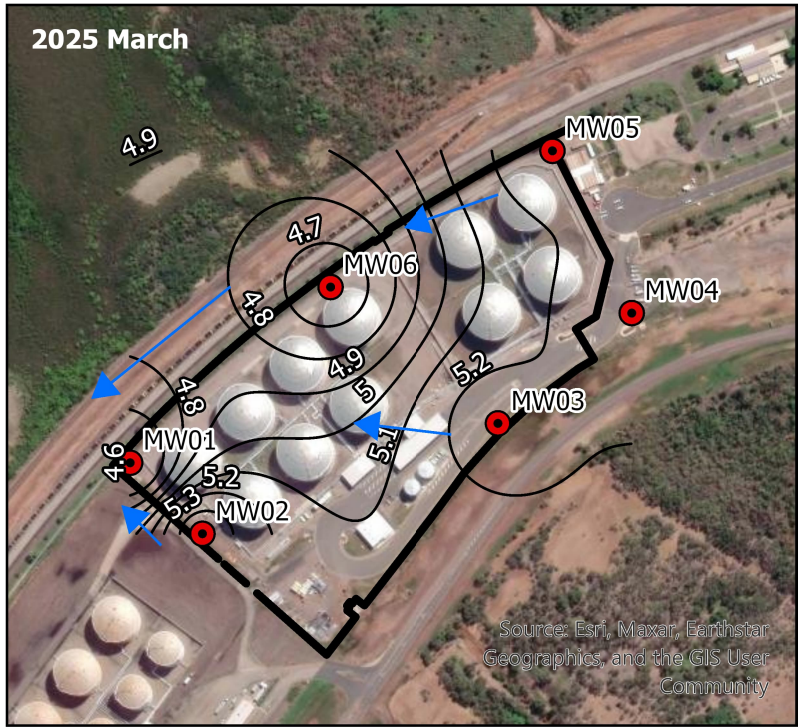
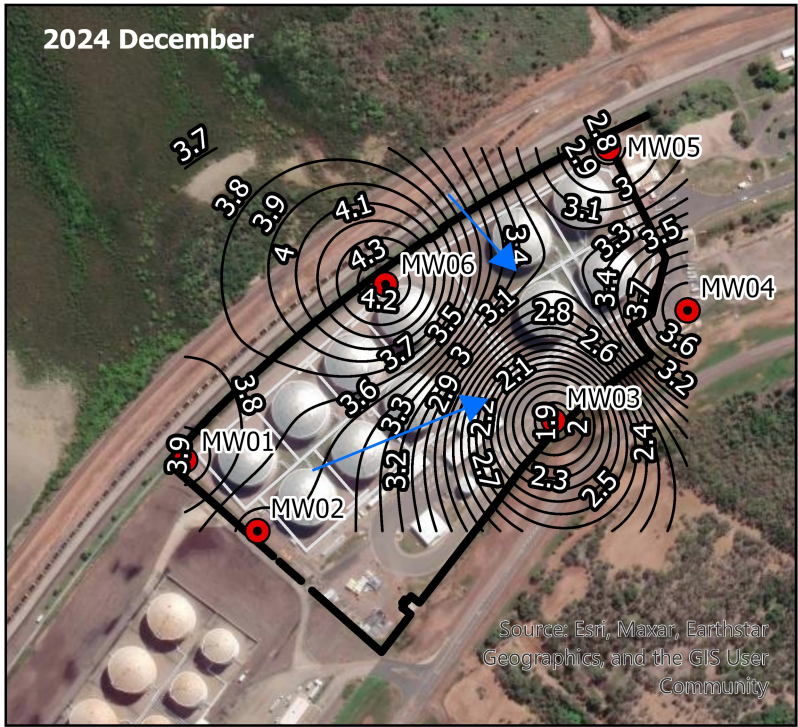


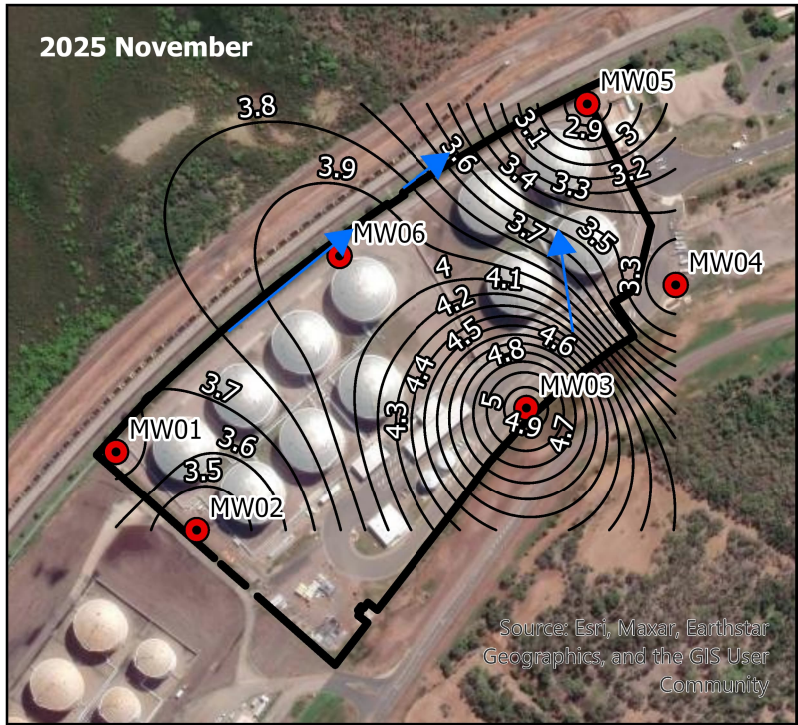
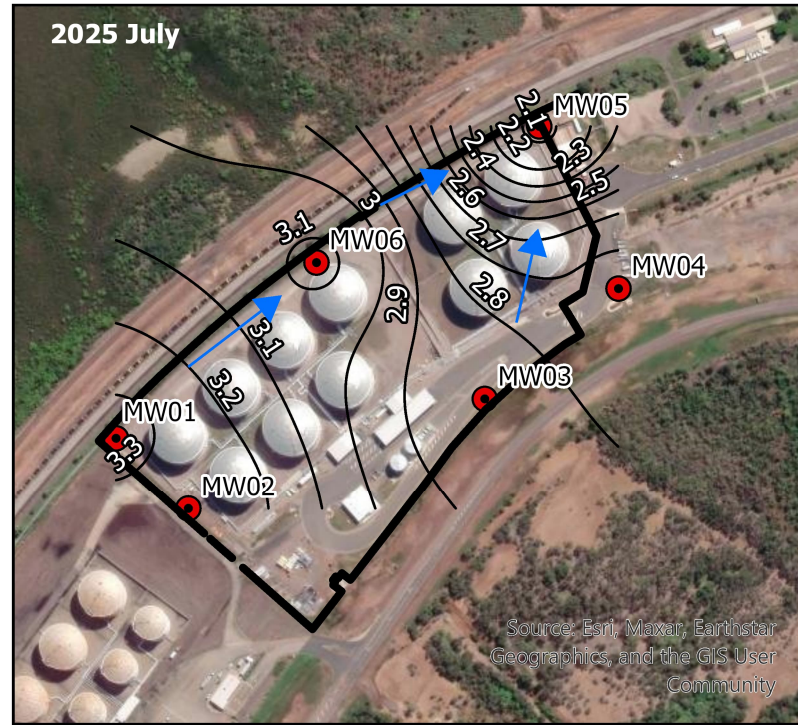
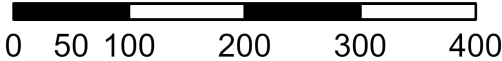
Figure 3: Groundwater contour modelling

Legend

- Site Fence
- Groundwater Contour (mAHD)
- Ground Water Monitoring Wells
- Groundwater Flow Direction



Meters



Jacobs

Appendix B. Quality Assurance / Quality Control

The following section provides a description of the QA/QC data collected during the October/November 2025 monitoring event and presents discussion about the validity of the sample data collected. A full assessment of the data quality objectives outlined in the EMP will be completed for the annual report.

The following quality control samples were collected during collected during the October/November monitoring event.

Field QA/QC:

- Primary samples: There were 11 primary samples collected and analysed. All primary samples were analysed by the primary laboratory (ALS).
- Duplicate samples: A total of two duplicate samples were collected and analysed exceeding the rate of $\geq 10\%$ data acceptance criteria (DAC). The duplicate samples were analysed by the primary laboratory (ALS).
- Triplicate samples: A total of two triplicate samples were collected, however due to a labelling error only one triplicate sample was analysed by the laboratory. The triplicate samples were analysed by an independent secondary laboratory (Eurofins).
- RPDs: Some RPD exceedances are noted for triplicate samples, however, 99% of RPD results were within acceptable limits. Duplicate and triplicate samples have been collected from both groundwater and surface water samples. Overall completeness is considered acceptable.
- Trip blanks: One trip blank sample was collected and reported all concentrations of TRH below LOR. The EMP states that one trip blank per batch should be analysed. A second trip blank was not submitted due to the lack of availability of trip blanks in Darwin in a short time-frame. However, it is considered unlikely to impact on the overall quality and reliability of the dataset and sampling program based on:
 - samples were collected by suitably qualified and experienced staff
 - trip blanks reported concentrations $< \text{LOR}$ for all analytes tested
 - In future extra trip blanks will be requested in advance of sampling, to ensure contingency if the sampling takes longer than expected.
- Rinsate samples: Two rinsate samples were collected from reusable sampling equipment (interface probe and surface water sampling pole). All results were below LOR.
- Holding Times: All samples were submitted within holding time for the selected analysis except for the following.
 - 13 samples x pH (holding time non-compliance of two days)
 - 13 samples x Oxygen – Dissolved (DO) (holding time non-compliance of three days)
 - 10 samples x Turbidity (holding time non-compliance of four days)
 - 10 samples x Nitrate as N (holding time non-compliance of one day)
 - 10 samples x Reactive Phosphorous as P (holding time non-compliance of one day)
 - 10 samples x Chlorophyll a (holding time non-compliance of one day)
 - 10 samples x Biochemical Oxygen Demand (BOD) (holding time non-compliance of one day)
 - 10 samples x Thermotolerant Coliforms & E. coli (holding time non-compliance of one day)
 - 10 samples x Enterococci (holding time non-compliance of one day)
- Every sample batch was submitted to the laboratory at ALS Darwin between one to three days after sampling, before being sent to ALS Sydney. All the stated analysis have very short holding times and will

likely regularly record breaches. It is believed to be unlikely that these breaches have had significant impact on the overall completeness of the data.

- **Sample Temperature:** Samples were received by the primary laboratory (ALS) at temperatures of 13°C/14.2 °C /16.9 °C /6.2 °C /24.6 °C /32.0 °C which is above the acceptance criteria outlined in the EMP of <5°C. All sample receipts note ice was present in eskies or an attempt to chill was made.
 - It is to be noted maximum temperatures recorded in Darwin (BoM weather station ID 14015) during the sampling program ranged from 34.4°C to 36.4°C. The temperature of samples received by the analytical laboratory were lower the ambient temperature at the time of sample collection. Prior to sample dispatch to ALS Sydney, ALS Darwin added ice where applicable. Given the transit times from ALS Darwin to ALS Sydney, and ice being present in all sample batches, Jacobs considers this non-conformance unlikely to materially impact the results.

Laboratory QA/QC:

- **Laboratory duplicates:** A total of 25 laboratory duplicates have been analysed by the primary laboratory. This exceeds the rate of One laboratory duplicate per process batch or two laboratory duplicates if the process batch exceeds 10 samples DAC. 99.9% of laboratory duplicate RPDs reported within the acceptable range. Overall completeness is considered appropriate.
- **Laboratory method blanks:** A total of 28 laboratory method blanks have been analysed by the primary laboratory. This exceeds the rate of one per process batch. All laboratory method blanks reported <LOR.
- **Matrix spike:** A total of 20 matrix spikes have been analysed by the primary laboratory. This meets the requirement of one per process batch. All matrix spike recoveries were reported within acceptable limits.
- **Laboratory control samples:** A total of 58 laboratory control samples have been analysed by the primary laboratory. This exceeds the rate of one per process batch. All laboratory control samples reported within the acceptable range.
- **Surrogate spike:** a total of 18 surrogate spike samples have been analysed exceeding the rate of one per sample analysed. A total of 1% of the surrogate spike results reported outside of the acceptable recovery range. All of these are reported in the secondary lab report 1287446. Eurofins have indicated that an acceptable recovery range of 50% to 150% exists for surrogates where primary results are below LOR. All the surrogate results are within this range and therefore the surrogate results are considered acceptable for the purposes of this assessment.

A review of primary, duplicate and triplicate sample relative percentage differences (RPDs), trip blank and rinsate laboratory results indicate that the data is suitable for the purposes of this assessment. QA/QC results are tabulated in **Appendix C**. A detailed QA/QC assessment will be provided in the Annual Report.

Appendix C. Analytical Results

	Metals													
	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (III+VI) (filtered)	Chromium (trivalent) (filtered)	Copper (filtered)	Lead (filtered)	Magnesium (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Soluble Carbonate as CaCO3*	Alkalinity (Hydroxide) as CaCO3
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L
EQL	1	0.1	10	1	10	1	1	1,000	0.1	1	5	0.01	1	1
Darwin Harbour WQO Marine Upper Estuary - Table 1												0.01		
Dutch Intervention (2000)														
PFAS NEMP 2025 Table 8 Interim marine 95%														
PFAS NEMP 2025 Table 8 Interim marine 99%														
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}	0.14 ^{#3}		7.7 ^{#4}	0.3 ^{#3}	2.2 ^{#4}		0.1 ^{#3}	7 ^{#2}	7 ^{#3}			
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}	4.4 ^{#3}		27.4 ^{#4}	1.3 ^{#3}	4.4 ^{#4}		0.4 ^{#3}	70 ^{#2}	8			

Location			Lab Report															
Code	Field ID	Date	Number	Sample Code														
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	<10	<1	<10	<1	<1	147,000	<0.1	<1	<5	<0.01	<1	<1
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	<10	<1	<10	<1	<1	233,000	<0.1	<1	<5	<0.01	<1	<1
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	<10	<1	<10	27	<1	27,000	<0.1	3	6	0.02	<1	<1
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	<10	<1	<10	290	<1	17,000	<0.1	7	7	0.04	<1	<1
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	<10	10	10	1,470	109	547,000	<0.1	99	98	0.03	<1	<1
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010		<1	<0.1	<10	<1	2	<1	10,000	<0.1	2	15	<0.01	<1	<1

Comments

RED - Refers to adopted trigger values

- #1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes
- #2 High reliability
- #3 Very high reliability
- #4 Low reliability
- #5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.
- #6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.
- #7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.
- #8 Result value is an approximate.
- #9 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

- NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1
- Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)
- HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%
- HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%
- ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs
- ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Inorganics																				
	Arsenic (filtered)	Cadmium (filtered)	Alkalinity (total) as CaCO3	Ammonia as N	Anions Total	Bicarbonate Alkalinity as CaCO3	Calcium (filtered)	Cations Total	Chloride	Electrical conductivity (lab)	Fluoride	Ionic Balance	Kjeldahl Nitrogen Total	Nitrate & Nitrite (as N)	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total)	Chlorophyll a	Phosphorus total (as P)	Potassium (filtered)	Sodium (filtered)
	µg/L	µg/L	mg/L	mg/L	meq/L	mg/L	mg/L	meq/L	mg/L	µS/cm	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L
EQL	1	0.1	1		0.01	1	1	0.01	1	1	0.1	0.01	0.1	0.01	0.01	0.01	0.1	1	0.01	1	1
Darwin Harbour WQO Marine Upper Estuary - Table 1				0.02													0.3	4	0.03		
Dutch Intervention (2000)																					
PFAS NEMP 2025 Table 8 Interim marine 95%																					
PFAS NEMP 2025 Table 8 Interim marine 99%																					
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}		0.5 ^{#5}																	
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}		0.91 ^{#5}																	

Location			Lab Report																						
Code	Field ID	Date	Number	Sample Code																					
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	89	1.15	111	89	92	96.9	3,680	9,770	0.4	6.65	1.3	<0.01	<0.01	<0.01	1.3	<1	<0.01	58	1,810
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	457	11.0	190	457	139	159	6,380	16,700	2.1	8.88	13.0	<0.01	<0.01	<0.01	13.0	<1	0.08	95	2,990
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	247	0.03	10.8	247	74	8.99	152	955	0.5	9.20	1.6	0.44	0.44	<0.01	2.0	<1	0.06	18	60
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	10	<0.01	17.3	10	9	15.9	457	1,680	0.2	4.31	0.2	1.53	1.53	<0.01	1.7	<1	0.06	9	317
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	<1	0.16	258	<1	124	216	8,570	22,400	0.2	8.91	0.3	<0.10 ^{#9}	<0.10 ^{#9}	<0.01	0.3	<1	0.05	36	3,770
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010	<1	<0.1	5	0.04	7.94	5	29	7.26	235	767	0.1	4.46	0.4	0.59	0.59	<0.01	1.0	<1	0.01	8	110

Comments

RED - Refers to adopted trigger values

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

#2 High reliability

#3 Very high reliability

#4 Low reliability

#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.

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#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic v

#8 Result value is an approximate.

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Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

						Physiochemical parameters			TRH - NEPM 2013 Fractions							TPH - NEPM 1999 Fractions					
	Arsenic (filtered)	Cadmium (filtered)	Sulfate as SO4 - Turbidimetric (filtered)	Total Dissolved Solids (Calc.)	Hardness as CaCO3 (filtered)	Turbidity (Lab)	Dissolved Oxygen (Lab)	pH (Lab)	TRH >C6 - C10	TRH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH >C10 - C40 (Sum of total)	TRH >C6 - C10 less BTEX (F1)	TRH >C10 - C16 less Naphthalene (F2)	TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH C29-C36	TPH C10 - C36 (Sum of total)	
	µg/L	µg/L	mg/L	mg/L	mg/L	NTU	%	pH Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	1	0.1	1	1	1	0.1	0.01048	0.01	20	100	100	100	100	20	100	20	50	100	50	50	5
Darwin Harbour WQO Marine Upper Estuary - Table 1								7-8.5													
Dutch Intervention (2000)									600	600	600	600									
PFAS NEMP 2025 Table 8 Interim marine 95%																					
PFAS NEMP 2025 Table 8 Interim marine 99%																					
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																			
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}																			

Location			Lab Report																				
Code	Field ID	Date	Number	Sample Code																			
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	246	6,350	835	62.1	0.88	6.20	<20	<100	<100	<100	<100	<20	<100	<20	<50	<100	<50
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	20	10,900	1,310	590	0.72	6.82	<20	<100	<100	<100	<100	<20	<100	<20	<50	<100	<50
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	76	621	296	10.3	0.82	6.69	<20	<100	<100	<100	<100	<20	<100	<20	<50	<100	<50
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	202	1,090	92	48.3	0.80	5.60	<20	<100	<100	<100	<100	<20	<100	<20	<50	<100	<50
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	800	14,600	2,560	9.5	0.74	3.42	<20	<100	<100	<100	<100	<20	<100	<20	<50	<100	<50
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010	<1	<0.1	58	499	114	12.8	0.99	5.26	<20	<100	<100	<100	<100	<20	<100	<20	<50	<100	<50

Comments

RED - Refers to adopted trigger values

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

#2 High reliability

#3 Very high reliability

#4 Low reliability

#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.

#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chrcc

#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic v

#8 Result value is an approximate.

#9 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Polycyclic aromatic hydrocarbons (PAHs)																					Biological oxygen demand
	Arsenic (filtered)	Cadmium (filtered)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (zero)	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Naphthalene	PAHs (Sum of total)		
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
EQL	1	0.1	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1	0.5	2	
Darwin Harbour WQO Marine Upper Estuary - Table 1																						
Dutch Intervention (2000)																						
PFAS NEMP 2025 Table 8 Interim marine 95%																						
PFAS NEMP 2025 Table 8 Interim marine 99%																						
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																	50 ^{#6}			
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}			0.01					0.01				1			0.6		70 ^{#6}			

Location			Lab Report																					
Code	Field ID	Date	Number	Sample Code																				
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<2
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	3
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<2
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<2
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<2
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010		<1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<2

Comments

RED - Refers to adopted trigger values

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

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#3 Very high reliability

#4 Low reliability

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Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Microbiological				Monocyclic Aromatic Hydrocarbons (MAHs)																	
	Arsenic (filtered)	Cadmium (filtered)	E. Coli	Enterococci	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluorohexanesulfonic acid (PFHxS)	
	µg/L	µg/L	cfu/100 ml	orgs/100mL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	1	1	1	2	2	2	2	2	1	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Darwin Harbour WQO Marine Upper Estuary - Table 1			200	50																		
Dutch Intervention (2000)																						
PFAS NEMP 2025 Table 8 Interim marine 95%												0.13 ^{#1}	130 ^{#1}									
PFAS NEMP 2025 Table 8 Interim marine 99%												0.00023 ^{#1}	19 ^{#1}									
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}			500 ^{#5}																	
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}			700 ^{#6}	180	80		350													

Location			Lab Report																								
Code	Field ID	Date	Number	Sample Code																							
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	<1	11	<1	<2	<2	<2	<2	<2	<1	<0.01	0.29	<0.02	<0.02	1.63	<0.02	<0.02	0.04	1.41	<0.01		
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	<1	<1	<1	<2	<2	<2	<2	<2	<1	<0.01	0.02	<0.02	<0.02	0.34	<0.02	<0.02	<0.02	0.30	<0.01		
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	6 ^{#8}	54	<1	<2	<2	<2	<2	<2	<1	<0.01	<0.01	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.01		
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	<1	<1	<1	<2	<2	<2	<2	<2	<1	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01		
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	<1	<1	<1	<2	<2	<2	<2	<2	<1	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01		
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010	<1	<0.1	1,600	640	<1	<2	<2	<2	<2	<2	<1	<0.01	0.02	<0.02	<0.02	0.23	<0.02	<0.02	<0.02	0.14	<0.01		

Comments

RED - Refers to adopted trigger values

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

#2 High reliability

#3 Very high reliability

#4 Low reliability

#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.

#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic toxicity)

#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic toxicity)

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Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Per- and Poly-fluoroalkyl Substances (PFAS)																					
	Arsenic (filtered)	Cadmium (filtered)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexadecanoic acid (PFHxDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorobutanoic acid (PFBA)	N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSSA)	N-ethyl perfluorooctane sulfonamide (N-EtFOSA)	N-methyl perfluorooctanesulfonamid o ethanol (N-MeFOSE)	N-ethyl perfluorooctanesulfonamid o ethanol (N-EtFOSE)	N-Methyl perfluorooctane sulfonamide (N-MeFOSA)	N-methyl perfluorooctane sulfonamido acetic acid (N-MeFOSAA)	Sum (PFHxS + PFOS)	Sum of PFAS	
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	1	0.1	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.1	0.02	0.05	0.05	0.05	0.05	0.02	0.01	0.01	
Darwin Harbour WQO Marine Upper Estuary - Table 1																						
Dutch Intervention (2000)																						
PFAS NEMP 2025 Table 8 Interim marine 95%																						
PFAS NEMP 2025 Table 8 Interim marine 99%																						
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																				
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}																				

Location			Lab Report																						
Code	Field ID	Date	Number	Sample Code																					
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	0.72	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.4	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	8.76
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	0.10	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.07
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0.02
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010	<1	<0.1	0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0.60

Comments

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Environmental Standards

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HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

				(n:2) Fluorotelomer Sulfonic Acids			
	Arsenic (filtered)	Cadmium (filtered)	Sum of PFAS (WA DER List)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	0.01	0.05	0.05	0.05	0.05
Darwin Harbour WQO Marine Upper Estuary - Table 1							
Dutch Intervention (2000)							
PFAS NEMP 2025 Table 8 Interim marine 95%							
PFAS NEMP 2025 Table 8 Interim marine 99%							
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}					
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}					

Location			Lab Report								
Code	Field ID	Date	Number	Sample Code							
MW01	MW01_251028	28 Oct 2025	ES2533902	ES2533902001	13	<0.1	8.72	<0.05	4.18	0.09	<0.05
MW02	MW02_251029	28 Oct 2025	ES2533902	ES2533902008	4	<0.1	1.07	<0.05	0.21	<0.05	<0.05
MW03	MW03_251028	28 Oct 2025	ES2533902	ES2533902002	2	<0.1	0.02	<0.05	<0.05	<0.05	<0.05
MW04	MW04_251028	28 Oct 2025	ES2533902	ES2533902003	3	<0.1	<0.01	<0.05	<0.05	<0.05	<0.05
MW05	MW05_251029	28 Oct 2025	ES2533902	ES2533902009	226	1.4	<0.01	<0.05	<0.05	<0.05	<0.05
MW06	MW06_251029	28 Oct 2025	ES2533902	ES2533902010	<1	<0.1	0.60	<0.05	0.16	<0.05	<0.05

Comments

RED - Refers to adopted trigger values

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Environmental Standards

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HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Metals											Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Soluble Carbonate as CaCO3*	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Ammonia as N	Anions Total	Bicarbonate Alkalinity as CaCO3
	Arsenic (filtered) µg/L	Cadmium (filtered) µg/L	Chromium (hexavalent) (filtered) µg/L	Chromium (III+VI) (filtered) µg/L	Chromium (trivalent) (filtered) µg/L	Copper (filtered) µg/L	Lead (filtered) µg/L	Magnesium (filtered) µg/L	Mercury (filtered) µg/L	Nickel (filtered) µg/L	Zinc (filtered) µg/L							
EQL	1	0.1	10	1	10	1	1	1,000	0.1	1	5	0.01	1	1	1	0.01	0.01	1
Darwin Harbour WQO Marine Upper Estuary - Table 1												0.01				0.02		
Dutch Intervention (2000)	60	6		30		75	75		0.3	75	800							
PFAS NEMP 2025 Table 8 Interim marine 95%																		
PFAS NEMP 2025 Table 8 Interim marine 99%																		
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}	0.14 ^{#3}		7.7 ^{#4}	0.3 ^{#3}	2.2 ^{#4}		0.1 ^{#3}	7 ^{#2}	7 ^{#3}					0.5 ^{#5}		
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}	4.4 ^{#3}		27.4 ^{#4}	1.3 ^{#3}	4.4 ^{#4}		0.4 ^{#3}	70 ^{#2}	8					0.91 ^{#5}		

Location		Lab Report																				
Code	Field ID	Date	Number	Sample Code																		
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	<10	<1	<10	3	<1	3,000	<0.1	<1	57	<0.01	<1	<1	28	<0.01	2.81	28
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	<10	1	<10	4	<1	2,000	<0.1	<1	20	<0.01	<1	<1	27	0.02	2.12	27
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	<10	<1	<10	<1	<1	6,000	<0.1	2	9	<0.01	<1	<1	45	0.08	4.65	45
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	<10	<1	<10	<1	<1	13,000	<0.1	2	17	<0.01	<1	<1	66	0.03	7.18	66
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	<10	<1	<10	3	<1	2,000	<0.1	<1	69	<0.01	<1	<1	17	0.01	2.91	17

Comments

- #1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes
- #2 High reliability
- #3 Very high reliability
- #4 Low reliability
- #5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.
- #6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.
- #7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species). Check toxicant DGV technical brief for spread of data and its significance.
- #8 Result value is an approximate.

Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Inorganics																	
	Arsenic (filtered)	Cadmium (filtered)	Calcium (filtered)	Cations Total	Chloride	Electrical conductivity (lab)	Fluoride	Ionic Balance	Kjeldahl Nitrogen Total	Nitrate & Nitrite (as N)	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total)	Chlorophyll a	Phosphorus total (as P)	Potassium (filtered)	Sodium (filtered)	Sulfate as SO4 - Turbidimetric (filtered)
	µg/L	µg/L	mg/L	meq/L	mg/L	µS/cm	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	0.1	1	0.01	1	1	0.1	0.01	0.1	0.01	0.01	0.01	0.1	1	0.01	1	1	1
Darwin Harbour WQO Marine Upper Estuary - Table 1													0.3	4	0.03			
Dutch Intervention (2000)	60	6																
PFAS NEMP 2025 Table 8 Interim marine 95%																		
PFAS NEMP 2025 Table 8 Interim marine 99%																		
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}																

Location			Lab Report																			
Code	Field ID	Date	Number	Sample Code																		
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	28	2.68	29	279	0.3	-	0.5	0.06	0.06	<0.01	0.6	<1	0.02	3	22	69
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	20	2.24	36	232	0.2	-	0.6	0.36	0.34	0.02	1.0	4	0.03	3	23	27
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	17	4.44	125	494	0.2	2.41	1.3	<0.01	<0.01	<0.01	1.3	1	0.33	7	67	11
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	22	6.99	190	710	0.3	1.30	0.6	0.03	0.03	<0.01	0.6	12	0.06	5	108	24
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	19	2.80	63	338	0.2	-	0.4	0.36	0.34	0.02	0.8	<1	0.03	3	37	38

Comments
#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes
#2 High reliability
#3 Very high reliability
#4 Low reliability
#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.
#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)
#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)
#8 Result value is an approximate.

Environmental Standards
NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1
Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)
HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%
HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%
ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

					Physiochemical parameters			TRH - NEPM 2013 Fractions							TPH - NEPM 1999 Fractions			
	Arsenic (filtered)	Cadmium (filtered)	Total Dissolved Solids (Calc.)	Hardness as CaCO3 (filtered)	Turbidity (Lab)	Dissolved Oxygen (Lab)	pH (Lab)	TRH >C6 - C10	TRH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH >C10 - C40 (Sum of total)	TRH >C6 - C10 less BTEX (F1)	TRH >C10 - C16 less Naphthalene (F2)	TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH C29-C36
	µg/L	µg/L	mg/L	mg/L	NTU	%	pH Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	1	1	0.1	0.01048	0.01	20	100	100	100	100	20	100	20	50	100	50
Darwin Harbour WQO Marine Upper Estuary - Table 1					4		7-8.5											
Dutch Intervention (2000)	60	6						600	600	600	600							
PFAS NEMP 2025 Table 8 Interim marine 95%																		
PFAS NEMP 2025 Table 8 Interim marine 99%																		
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}																

Location			Lab Report																	
Code	Field ID	Date	Number	Sample Code																
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	181	82	35.6	0.91	6.08	<20	<100	<100	<100	<100	<20	<100	<20	<50
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	151	58	22.5	1.0	6.22	<20	<100	<100	<100	<100	<20	<100	<20	<50
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	321	67	8.2	0.42	7.04	<20	<100	210	<100	210	<20	<100	<20	<50
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	462	108	8.8	0.78	7.31	<20	<100	<100	<100	<100	<20	<100	<20	<50
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	220	56	37.2	0.88	6.00	<20	<100	<100	<100	<100	<20	<100	<20	<50

Comments
#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes
#2 High reliability
#3 Very high reliability
#4 Low reliability
#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.
#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)
#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)
#8 Result value is an approximate.

Environmental Standards
NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1
Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)
HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%
HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%
ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Polycyclic aromatic hydrocarbons (PAHs)																	
	Arsenic (filtered)	Cadmium (filtered)	TPH C10 - C36 (Sum of total)	Naphthalene (value used in F2 calc)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (zero)	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	50	5	1	1	1	1	1	1	1	0.5	0.5	1	1	1	1	1
Darwin Harbour WQO Marine Upper Estuary - Table 1																		
Dutch Intervention (2000)	60	6					5	0.5	0.05		0.05	0.05		0.2		1		0.05
PFAS NEMP 2025 Table 8 Interim marine 95%																		
PFAS NEMP 2025 Table 8 Interim marine 99%																		
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}					0.01					0.01				1		

Location			Lab Report																		
Code	Field ID	Date	Number	Sample Code																	
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	<50	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	<50	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	220	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	<50	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	<50	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0

Comments

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

#2 High reliability

#3 Very high reliability

#4 Low reliability

#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.

#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)

#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)

#8 Result value is an approximate.

Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

							Microbiological			Monocyclic Aromatic Hydrocarbons (MAHs)								
	Arsenic (filtered)	Cadmium (filtered)	Phenanthrene	Pyrene	Naphthalene	PAHs (Sum of total)	Biological oxygen demand	E. Coli	Enterococci	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	cfu/100 ml	orgs/100mL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	1	1	1	0.5	2	1	1	1	2	2	2	2	2	1	0.01	0.01
Darwin Harbour WQO Marine Upper Estuary - Table 1								200	50									
Dutch Intervention (2000)	60	6	5		70					30	1,000	150			70			
PFAS NEMP 2025 Table 8 Interim marine 95%																	0.14 ^{#1}	220 ^{#1}
PFAS NEMP 2025 Table 8 Interim marine 99%																	0.00023 ^{#1}	19 ^{#1}
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}			50 ^{#6}					500 ^{#6}								
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}	0.6		70 ^{#6}					700 ^{#6}	180	80		350				

Location			Lab Report																			
Code	Field ID	Date	Number	Sample Code																		
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	<1.0	<1.0	<1.0	<0.5	<2	570	1,500	<1	<2	<2	<2	<2	<2	<1	<0.01	<0.01
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	<1.0	<1.0	<1.0	<0.5	2	2 ^{#8}	29	<1	<2	<2	<2	<2	<2	<1	<0.01	<0.01
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	<1.0	<1.0	<1.0	<0.5	11	220	1,800	<1	<2	<2	<2	<2	<2	<1	<0.01	0.01
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	<1.0	<1.0	<1.0	<0.5	5	150	5 ^{#8}	<1	<2	<2	<2	<2	<2	<1	<0.01	0.02
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	<1.0	<1.0	<1.0	<0.5	2	6,100	5,500	<1	<2	<2	<2	<2	<2	<1	<0.01	<0.01

Comments

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

#2 High reliability

#3 Very high reliability

#4 Low reliability

#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.

#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)

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#8 Result value is an approximate.

Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

	Per- and Poly-fluoroalkyl Substances (PFAS)																	
	Arsenic (filtered)	Cadmium (filtered)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHpA)	Perfluorohexadecanoic acid (PFHxDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorodecanoic acid (PFDA)	Perfluorohexane sulfonic acid (PFHpS)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorotetradecanoic acid (PFTeDA)
EQL	1	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.05
Darwin Harbour WQO Marine Upper Estuary - Table 1																		
Dutch Intervention (2000)	60	6																
PFAS NEMP 2025 Table 8 Interim marine 95%																		
PFAS NEMP 2025 Table 8 Interim marine 99%																		
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}																

Location			Lab Report																		
Code	Field ID	Date	Number	Sample Code																	
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	<0.02	<0.02	0.52	<0.02	<0.02	0.26	<0.01	0.12	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	<0.02	<0.02	0.57	<0.02	<0.02	0.28	<0.01	0.12	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05

Comments

#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes

#2 High reliability

#3 Very high reliability

#4 Low reliability

#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.

#6 Moderate reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)

#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)

#8 Result value is an approximate.

Environmental Standards

NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1

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HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%

HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%

ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs

ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

															(n:2) Fluorotelomer Sulfonic Acids			
	Arsenic (filtered)	Cadmium (filtered)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorobutanoic acid (PFBA)	N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSSA)	N-ethyl perfluorooctane sulfonamide (N-EtFOSA)	N-methyl perfluorooctanesulfonamido ethanol (N-MeFOSE)	N-ethyl perfluorooctanesulfonamido ethanol (N-EtFOSE)	N-Methyl perfluorooctane sulfonamide (N-MeFOSA)	N-methyl perfluorooctane sulfonamido acetic acid (N-MeFOAAA)	Sum (PFHxS + PFOS)	Sum of PFAS	Sum of PFAS (WA DER List)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	0.02	0.02	0.1	0.02	0.05	0.05	0.05	0.05	0.02	0.01	0.01	0.01	0.05	0.05	0.05	0.05
Darwin Harbour WQO Marine Upper Estuary - Table 1																		
Dutch Intervention (2000)	60	6																
PFAS NEMP 2025 Table 8 Interim marine 95%																		
PFAS NEMP 2025 Table 8 Interim marine 99%																		
ANZG (2018) Marine water 99% toxicant DGVs		0.7 ^{#2}																
ANZG (2018) Marine water 95% toxicant DGVs		5.5 ^{#7}																

Location			Lab Report																			
Code	Field ID	Date	Number	Sample Code																		
SW01	SW01_251029	28 Oct 2025	ES2533902	ES2533902012	<1	<0.1	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
SW04	SW04_251029	28 Oct 2025	ES2533902	ES2533902013	<1	<0.1	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
SW05	SW05_251103	03 Nov 2025	ES2534346	ES2534346002	2	<0.1	<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.28	1.28	<0.05	0.27	<0.05	<0.05
SW06	SW06_251103	03 Nov 2025	ES2534346	ES2534346001	4	<0.1	<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.32	1.32	<0.05	0.23	<0.05	<0.05
SW08	SW08_251029	28 Oct 2025	ES2533902	ES2533902011	<1	<0.1	<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0.03	0.03	<0.05	<0.05	<0.05	<0.05

Comments
#1 Refer to Table 8 in PFAS NEMP 2025 for comments and notes
#2 High reliability
#3 Very high reliability
#4 Low reliability
#5 Moderate reliability. Ammonia as total ammonia, measured as [NH3-N] at pH 8.
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#7 High reliability. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values)
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Environmental Standards
NT Gov, February 2010, Darwin Harbour WQO Marine Upper Estuary - Table 1
Rijkswaterstaat Environment, February 2000, Dutch Intervention (2000)
HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 95%
HEPA, March 2025, PFAS NEMP 2025 Table 8 Interim marine 99%
ANZG, 2018, ANZG (2018) Marine water 99% toxicant DGVs
ANZG, 2018, ANZG (2018) Marine water 95% toxicant DGVs

13/11/2025, 1 of 2

Field ID Date Lab Report Number Sample Type Matrix Type	Unit	EQL	MW01_ 251028	QC101_ 251028	RPD	MW01_ 251028	QC201_ 251028	RPD	SW05_ 251103	QC102_ 251103	RPD
			28 Oct 2025	28 Oct 2025		28 Oct 2025	28 Oct 2025		03 Nov 2025	03 Nov 2025	
			ES2533902	ES2533902		ES2533902	1287446		ES2534346	ES2534346	
			Normal	Field_D		Normal	Interlab_D		Normal	Field_D	
			Water	Water		Water	Water		Water	Water	
Perfluorobutanoic acid (PFBA)	µg/L	0.05	0.4	0.4	0	0.4	0.37	8	0.1	0.1	0
N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0
N-ethyl perfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-methyl perfluorooctanesulfonamido ethanol (N-MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-ethyl perfluorooctanesulfonamido ethanol (N-EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-methyl perfluorooctane sulfonamido acetic acid (N-MeFOSSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0
Sum (PFHxS + PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFAS	µg/L	0.01	8.76	8.80	0	8.76	7.7	13	1.28	1.31	2
Sum of PFAS (WA DER List)	µg/L	0.01	8.72	8.76	0	8.72	7.69	13	1.28	1.31	2
(n=2) Fluorotelomer Sulfonic Acids											
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	4.18	4.26	2	4.18	3.4	21	0.27	0.29	7
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	0.09	0.08	12	0.09	0.08	12	<0.05	<0.05	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
Biological											
Chlorophyll a	µg/L	1	<1	<1	0	<1	<5	0	1	<1	0

Comments

#1 The LORs have been raised due to the high concentration of one or more analytes

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

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 80 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))

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

		Field ID	QC301_251028	QC302_251103	QC501_251029
		Date	28 Oct 2025	03 Nov 2025	28 Oct 2025
		Lab Report Number	ES2533902	ES2534346	ES2533902
		Sample Type	Rinsate	Rinsate	Trip_B
		Matrix Type	Water	Water	Water
	Unit	EQL			
TRH - NEPM 2013 Fractions					
TRH >C6 - C10	µg/L	20	<20	<20	<20
TRH >C6 - C10 less BTEX (F1)	µg/L	20	<20	<20	<20
TPH - NEPM 1999 Fractions					
TPH C6 - C9	µg/L	20	<20	<20	<20
Polycyclic aromatic hydrocarbons (PAHs)					
Naphthalene (value used in F2 calc)	µg/L	5	<5	<5	<5
Monocyclic Aromatic Hydrocarbons (MAHs)					
Benzene	µg/L	1	<1	<1	<1
Toluene	µg/L	2	<2	<2	<2
Ethylbenzene	µg/L	2	<2	<2	<2
Xylene (m & p)	µg/L	2	<2	<2	<2
Xylene (o)	µg/L	2	<2	<2	<2
Xylene Total	µg/L	2	<2	<2	<2
Total BTEX	µg/L	1	<1	<1	<1
Per- and Poly-fluoroalkyl Substances (PFAS)					
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	-
Perfluoro-n-pentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	-
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	-
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02	-
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	-
Sum (PFHxS + PFOS)	µg/L	0.01	<0.01	<0.01	-
Sum of PFAS (WA DER List)	µg/L	0.01	<0.01	<0.01	-
(n:2) Fluorotelomer Sulfonic Acids					
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	-

Appendix D. Laboratory documentation



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2533902**

Client	: JACOBS GROUP (AUSTRALIA) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: DANIEL COFFEY	Contact	: Jackie Chau
Address	: LEVEL 2 25 PARAP ROAD PARAP NT 0804	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel.coffey@jacobs.com	E-mail	: jackie.chau@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: IW272400	Page	: 1 of 5
Order number	: 540003296	Quote number	: ES2024SINKNI0008 (ES24SINKNI0008)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: DANIEL COFFEY		

Dates

Date Samples Received	: 31-Oct-2025 11:30	Issue Date	: 31-Oct-2025
Client Requested Due Date	: 06-Nov-2025	Scheduled Reporting Date	: 06-Nov-2025

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 13.0°C 14.2°C 16.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 13 / 13

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **QC Forward analysis will be conducted by Eurofins.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months $\pm$ 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

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

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA045 Turbidity	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EP008 Chlorophyll a	WATER - EP025 Dissolved Oxygen (DO)	WATER - NT-08A Total Nitrogen + NO ₂ + NO ₃ + NH ₃ + Total P +	WATER - NT-12 General Water Suite	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2533902-001	28-Oct-2025 00:00	MW01_251028	✓	✓	✓	✓	✓	✓	✓
ES2533902-002	28-Oct-2025 00:00	MW03_251028	✓	✓	✓	✓	✓	✓	✓
ES2533902-003	28-Oct-2025 00:00	MW04_251028	✓	✓	✓	✓	✓	✓	✓
ES2533902-007	28-Oct-2025 00:00	QC101_251028	✓	✓	✓	✓	✓	✓	✓
ES2533902-008	28-Oct-2025 00:00	MW02_251029	✓	✓	✓	✓	✓	✓	✓
ES2533902-009	28-Oct-2025 00:00	MW05_251029	✓	✓	✓	✓	✓	✓	✓
ES2533902-010	28-Oct-2025 00:00	MW06_251029	✓	✓	✓	✓	✓	✓	✓
ES2533902-011	28-Oct-2025 00:00	SW08_251029	✓	✓	✓	✓	✓	✓	✓
ES2533902-012	28-Oct-2025 00:00	SW01_251029	✓	✓	✓	✓	✓	✓	✓
ES2533902-013	28-Oct-2025 00:00	SW04_251029	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP030 Biochemical Oxygen Demand (BOD)	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - MW006 (Ec) E.coli by Membrane Filtration	WATER - MW023 Enterococci - Enumeration by Membrane	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2533902-001	28-Oct-2025 00:00	MW01_251028	✓	✓		✓	✓	✓	
ES2533902-002	28-Oct-2025 00:00	MW03_251028	✓	✓		✓	✓	✓	
ES2533902-003	28-Oct-2025 00:00	MW04_251028	✓	✓		✓	✓	✓	
ES2533902-004	28-Oct-2025 00:00	QC301_251028			✓				✓
ES2533902-005	28-Oct-2025 00:00	QC501_251029							✓
ES2533902-007	28-Oct-2025 00:00	QC101_251028	✓	✓		✓	✓	✓	
ES2533902-008	28-Oct-2025 00:00	MW02_251029	✓	✓		✓	✓	✓	
ES2533902-009	28-Oct-2025 00:00	MW05_251029	✓	✓		✓	✓	✓	
ES2533902-010	28-Oct-2025 00:00	MW06_251029	✓	✓		✓	✓	✓	
ES2533902-011	28-Oct-2025 00:00	SW08_251029	✓	✓		✓	✓	✓	
ES2533902-012	28-Oct-2025 00:00	SW01_251029	✓	✓		✓	✓	✓	
ES2533902-013	28-Oct-2025 00:00	SW04_251029	✓	✓		✓	✓	✓	



Matrix: **WATER**

Laboratory sample ID Sampling date / time Sample ID

ES2533902-006	28-Oct-2025 00:00	QC601_251029	✓
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WATER - EP080
BTEXN

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
Client Sample ID(s)	Container						
EA005-P: pH by Auto Titrator							
MW01_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
MW02_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
MW03_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
MW04_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
MW05_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
MW06_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
QC101_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
SW01_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
SW04_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
SW08_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✖	----	----
EA045: Turbidity							
MW01_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW02_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW03_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW04_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW05_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW06_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
QC101_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
SW01_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
SW04_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
SW08_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
EK057G: Nitrite as N by Discrete Analyser							
MW01_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW02_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW03_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW04_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW05_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW06_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
QC101_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
SW01_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
SW04_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
SW08_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
EK071G: Reactive Phosphorus as P-By Discrete Analyser							
MW01_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW02_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW03_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----
MW04_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✖	----	----



MW05_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW06_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
QC101_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW01_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW04_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW08_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
EP008: Chlorophyll a and Pheophytin a							
MW01_251028	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW02_251029	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW03_251028	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW04_251028	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW05_251029	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW06_251029	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
QC101_251028	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW01_251029	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW04_251029	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW08_251029	Opaque Plastic Bottle - Unprese	----	30-Oct-2025	31-Oct-2025	✗	----	----
EP025: Oxygen - Dissolved							
MW01_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
MW02_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
MW03_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
MW04_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
MW05_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
MW06_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
QC101_251028	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
SW01_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
SW04_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
SW08_251029	Clear Plastic Bottle - Natural	----	28-Oct-2025	31-Oct-2025	✗	----	----
EP030: Biochemical Oxygen Demand (BOD)							
MW01_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW02_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW03_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW04_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW05_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW06_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
QC101_251028	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW01_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW04_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
SW08_251029	Clear Plastic Bottle - Natural	----	30-Oct-2025	31-Oct-2025	✗	----	----
MW006: Thermotolerant Coliforms & E.coli by Membrane Filtration							
MW01_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW02_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW03_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW04_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW05_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW06_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
QC101_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
SW01_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
SW04_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
SW08_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW023: Enumeration of Enterococci by Membrane Filtration							
MW01_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW02_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW03_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW04_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW05_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
MW06_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
QC101_251028	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
SW01_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
SW04_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----
SW08_251029	Sterile Plastic Bottle - Sodium Th	----	29-Oct-2025	31-Oct-2025	✗	----	----



Requested Deliverables

DANIEL COFFEY

- *AU Certificate of Analysis - NATA (COA)	Email	daniel.coffey@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	daniel.coffey@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	daniel.coffey@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	daniel.coffey@jacobs.com
- A4 - AU Tax Invoice (INV)	Email	daniel.coffey@jacobs.com
- Chain of Custody (CoC) (COC)	Email	daniel.coffey@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	daniel.coffey@jacobs.com

JACOBS INVOICES

- A4 - AU Tax Invoice (INV)	Email	auapinvoices@jacobs.com
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Inter-Laboratory Testing

Analysis conducted by ALS Darwin, NATA accreditation no. 825, site no. 25820.

(WATER) MW023: Enterococci by Membrane Filtration

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF



CERTIFICATE OF ANALYSIS

Work Order : **ES2533902**
Client : **JACOBS GROUP (AUSTRALIA) PTY LTD**
Contact : DANIEL COFFEY
Address : LEVEL 2 25 PARAP ROAD
PARAP NT 0804
Telephone : ----
Project : IW272400
Order number : 540003296
C-O-C number : ----
Sampler : DANIEL COFFEY
Site : ----
Quote number : ES24SINKNI0008
No. of samples received : 14
No. of samples analysed : 14

Page : 1 of 24
Laboratory : Environmental Division Sydney
Contact : Jackie Chau
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 31-Oct-2025 11:30
Date Analysis Commenced : 30-Oct-2025
Issue Date : 06-Nov-2025 14:48



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Darwin Microbiology, Woolner, NT



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.

- MF = membrane filtration
- CFU = colony forming unit
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- EP075 (SIM): 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), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol 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.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: Membrane filtration results for MW006 sample 002 & 013 are reported as estimate (~) due to the growth of bacteria on the filter membrane being counted <10 cfu and/or >100 cfu and due to the presence of many non-target organism colonies that may have inhibited the growth of the target organisms on the filter membrane. It may be informative to record this fact.
- Microbiological Comment: The samples numbered 3 were received and tested out of holding time. It may be informative to record this fact.
- EK059G: LOR raised for NOx due to sample matrix.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- MW023 is ALS's internal code and is equivalent to AS4276.9.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- 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.
- 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

				MW01_251028	MW03_251028	MW04_251028	QC301_251028	QC501_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-001	ES2533902-002	ES2533902-003	ES2533902-004	ES2533902-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.20	6.69	5.60	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	9770	955	1680	----	----
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	6350	621	1090	----	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	62.1	10.3	48.3	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	835	296	92	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	89	247	10	----	----
Total Alkalinity as CaCO3	----	1	mg/L	89	247	10	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	246	76	202	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	3680	152	457	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	92	74	9	----	----
Magnesium	7439-95-4	1	mg/L	147	27	17	----	----
Sodium	7440-23-5	1	mg/L	1810	60	317	----	----
Potassium	7440-09-7	1	mg/L	58	18	9	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.013	0.002	0.003	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	0.027	0.290	----	----

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01_251028	MW03_251028	MW04_251028	QC301_251028	QC501_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-001	ES2533902-002	ES2533902-003	ES2533902-004	ES2533902-005	
				Result	Result	Result	Result	Result	
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	0.003	0.007	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	0.007	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
EG049F: Dissolved Trivalent Chromium									
Trivalent Chromium	16065-83-1	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EG050F: Dissolved Hexavalent Chromium									
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	0.4	0.5	0.2	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	1.15	0.03	<0.01	----	----	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	0.44	1.53	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.44	1.53	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.3	1.6	0.2	----	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	1.3	2.0	1.7	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	<0.01	0.06	0.06	----	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.02	0.04	----	----	
EN055: Ionic Balance									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW01_251028	MW03_251028	MW04_251028	QC301_251028	QC501_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-001	ES2533902-002	ES2533902-003	ES2533902-004	ES2533902-005
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
ø Total Anions	----	0.01	meq/L	111	10.8	17.3	----	----
ø Total Cations	----	0.01	meq/L	96.9	8.99	15.9	----	----
ø Ionic Balance	----	0.01	%	6.65	9.20	4.31	----	----
EP008: Chlorophyll a & Pheophytin a								
Chlorophyll a	----	1	mg/m³	<1	<1	<1	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	8.4	7.8	7.6	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW01_251028	MW03_251028	MW04_251028	QC301_251028	QC501_251029
Sampling date / time					28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit		ES2533902-001	ES2533902-002	ES2533902-003	ES2533902-004	ES2533902-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW01_251028	MW03_251028	MW04_251028	QC301_251028	QC501_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-001	ES2533902-002	ES2533902-003	ES2533902-004	ES2533902-005
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	4.18	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.09	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	8.76	0.02	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	8.72	0.02	<0.01	<0.01	----
MW006: Thermotolerant Coliforms & E.coli by MF								
<i>Escherichia coli</i>	----	1	CFU/100mL	<1	~6	<1	----	----
MW023: Enterococci by Membrane Filtration								
<i>Enterococci</i>	----	1	CFU/100mL	11	54	<1	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW01_251028	MW03_251028	MW04_251028	QC301_251028	QC501_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-001	ES2533902-002	ES2533902-003	ES2533902-004	ES2533902-005
				Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	29.2	24.5	20.1	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	69.5	62.5	47.8	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	60.6	56.2	44.2	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	82.1	78.4	57.3	----	----
Anthracene-d10	1719-06-8	1.0	%	83.5	77.9	60.2	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	84.4	79.3	62.8	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	76.5	102	93.4	94.1	85.7
Toluene-D8	2037-26-5	2	%	81.5	104	93.7	96.7	85.6
4-Bromofluorobenzene	460-00-4	2	%	79.6	97.3	92.4	93.0	83.0
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	90.1	91.5	93.4	91.0	----
13C8-PFOA	----	0.02	%	93.3	93.5	95.2	93.3	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				QC601_251029	QC101_251028	MW02_251029	MW05_251029	MW06_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-006	ES2533902-007	ES2533902-008	ES2533902-009	ES2533902-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	6.19	6.82	3.42	5.26
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	9820	16700	22400	767
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	----	6380	10900	14600	499
EA045: Turbidity								
Turbidity	----	0.1	NTU	----	62.1	590	9.5	12.8
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	832	1310	2560	114
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	95	457	<1	5
Total Alkalinity as CaCO3	----	1	mg/L	----	95	457	<1	5
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	248	20	800	58
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	3810	6380	8570	235
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	94	139	124	29
Magnesium	7439-95-4	1	mg/L	----	145	233	547	10
Sodium	7440-23-5	1	mg/L	----	1830	2990	3770	110
Potassium	7440-09-7	1	mg/L	----	58	95	36	8
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	0.007	0.004	0.226	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	0.0014	<0.0001
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	0.010	<0.001
Copper	7440-50-8	0.001	mg/L	----	<0.001	<0.001	1.47	0.002

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC601_251029	QC101_251028	MW02_251029	MW05_251029	MW06_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-006	ES2533902-007	ES2533902-008	ES2533902-009	ES2533902-010	
				Result	Result	Result	Result	Result	
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	0.109	<0.001	
Nickel	7440-02-0	0.001	mg/L	----	<0.001	<0.001	0.099	0.002	
Zinc	7440-66-6	0.005	mg/L	----	0.005	<0.005	0.098	0.015	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	<0.0001	
EG049F: Dissolved Trivalent Chromium									
Trivalent Chromium	16065-83-1	0.01	mg/L	----	<0.01	<0.01	0.01	<0.01	
EG050F: Dissolved Hexavalent Chromium									
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	<0.01	<0.01	<0.01	<0.01	
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	----	0.4	2.1	0.2	0.1	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	1.14	13.0	0.16	0.04	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	----	<0.01	<0.01	<0.01	<0.01	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	----	<0.01	<0.01	<0.10	0.59	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	----	<0.01	<0.01	<0.10	0.59	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	1.2	13.0	0.3	0.4	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	----	1.2	13.0	0.3	1.0	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	----	0.01	0.08	0.05	0.01	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	<0.01	<0.01	0.03	<0.01	
EN055: Ionic Balance									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				QC601_251029	QC101_251028	MW02_251029	MW05_251029	MW06_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-006	ES2533902-007	ES2533902-008	ES2533902-009	ES2533902-010
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
ø Total Anions	----	0.01	meq/L	----	115	190	258	7.94
ø Total Cations	----	0.01	meq/L	----	97.7	159	216	7.26
ø Ionic Balance	----	0.01	%	----	7.93	8.88	8.91	4.46
EP008: Chlorophyll a & Pheophytin a								
Chlorophyll a	----	1	mg/m³	----	<1	<1	<1	<1
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	8.9	6.9	7.1	9.4
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	----	<2	3	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC601_251029	QC101_251028	MW02_251029	MW05_251029	MW06_251029
Sampling date / time					28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit		ES2533902-006	ES2533902-007	ES2533902-008	ES2533902-009	ES2533902-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		----	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		----	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		----	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		----	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		19	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		18	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		17	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		16	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		17	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		33	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		87	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		20	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L		----	<0.02	<0.02	<0.02	<0.02



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				QC601_251029	QC101_251028	MW02_251029	MW05_251029	MW06_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-006	ES2533902-007	ES2533902-008	ES2533902-009	ES2533902-010
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	----	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	----	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	----	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	----	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	----	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	----	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	----	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	----	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	----	4.26	0.21	<0.05	0.16
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	----	0.08	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	----	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	----	8.80	1.07	<0.01	0.60
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	8.76	1.07	<0.01	0.60
MW006: Thermotolerant Coliforms & E.coli by MF								
Escherichia coli	----	1	CFU/100mL	----	<1	<1	<1	1600
MW023: Enterococci by Membrane Filtration								
Enterococci	----	1	CFU/100mL	----	14	<1	<1	640



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				QC601_251029	QC101_251028	MW02_251029	MW05_251029	MW06_251029
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00
Compound	CAS Number	LOR	Unit	ES2533902-006	ES2533902-007	ES2533902-008	ES2533902-009	ES2533902-010
				Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	28.9	25.6	28.4	24.4
2-Chlorophenol-D4	93951-73-6	1.0	%	----	51.3	55.7	62.4	59.5
2,4,6-Tribromophenol	118-79-6	1.0	%	----	45.4	62.7	59.3	60.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	65.4	67.4	72.3	66.9
Anthracene-d10	1719-06-8	1.0	%	----	66.4	74.6	79.9	71.7
4-Terphenyl-d14	1718-51-0	1.0	%	----	68.4	74.8	85.9	74.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	97.3	99.8	104	102	98.2
Toluene-D8	2037-26-5	2	%	98.1	99.9	104	103	101
4-Bromofluorobenzene	460-00-4	2	%	95.6	96.6	95.6	99.2	96.3
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	88.0	87.0	91.1	91.3
13C8-PFOA	----	0.02	%	----	95.6	85.0	96.0	95.4



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time					28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.00	6.08	6.22	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		338	279	232	----	----
EA016: Calculated TDS (from Electrical Conductivity)									
Total Dissolved Solids (Calc.)	----	1	mg/L		220	181	151	----	----
EA045: Turbidity									
Turbidity	----	0.1	NTU		37.2	35.6	22.5	----	----
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3	----	1	mg/L		56	82	58	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		17	28	27	----	----
Total Alkalinity as CaCO3	----	1	mg/L		17	28	27	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		38	69	27	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		63	29	36	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		19	28	20	----	----
Magnesium	7439-95-4	1	mg/L		2	3	2	----	----
Sodium	7440-23-5	1	mg/L		37	22	23	----	----
Potassium	7440-09-7	1	mg/L		3	3	3	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	0.001	----	----
Copper	7440-50-8	0.001	mg/L		0.003	0.003	0.004	----	----

Sub-Matrix: WATER
(Matrix: WATER)

Sample ID

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time					28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----	
				Result	Result	Result	Result	----	
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Zinc	7440-66-6	0.005	mg/L	0.069	0.057	0.020	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
EG049F: Dissolved Trivalent Chromium									
Trivalent Chromium	16065-83-1	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EG050F: Dissolved Hexavalent Chromium									
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	0.2	0.3	0.2	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.01	<0.01	0.02	----	----	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	0.02	<0.01	0.02	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	0.34	0.06	0.34	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.36	0.06	0.36	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.5	0.6	----	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	0.8	0.6	1.0	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.03	0.02	0.03	----	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EN055: Ionic Balance									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time					28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----
					Result	Result	Result	Result	----
EN055: Ionic Balance - Continued									
ø Total Anions	----	0.01	meq/L		2.91	2.81	2.12	----	----
ø Total Cations	----	0.01	meq/L		2.80	2.68	2.24	----	----
EP008: Chlorophyll a & Pheophytin a									
Chlorophyll a	----	1	mg/m³		<1	<1	4	----	----
EP025: Oxygen - Dissolved (DO)									
Dissolved Oxygen	----	0.1	mg/L		8.4	8.7	9.6	----	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		2	<2	2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time					28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----
					Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	----	----
^ Total Xylenes	----	2	µg/L		<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----
				Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.03	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----

Sub-Matrix: WATER
(Matrix: WATER)

Sample ID

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----	
Compound	CAS Number	LOR	Unit	ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----	
				Result	Result	Result	Result	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	0.03	<0.01	<0.01	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	0.03	<0.01	<0.01	----	----	
MW006: Thermotolerant Coliforms & E.coli by MF									
Escherichia coli	----	1	CFU/100mL	6100	570	~2	<1	----	
MW023: Enterococci by Membrane Filtration									
Enterococci	----	1	CFU/100mL	5500	1500	29	14	----	
EP075(SIM)S: Phenolic Compound Surrogates									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW08_251029	SW01_251029	SW04_251029	QC201_251028	----
Sampling date / time				28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	28-Oct-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2533902-011	ES2533902-012	ES2533902-013	ES2533902-014	-----
				Result	Result	Result	Result	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
Phenol-d6	13127-88-3	1.0	%	22.5	32.5	26.7	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	52.6	84.4	57.3	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	52.7	83.3	42.7	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	65.2	96.3	80.5	----	----
Anthracene-d10	1719-06-8	1.0	%	66.1	99.4	81.2	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	68.2	61.9	85.0	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	99.9	105	109	----	----
Toluene-D8	2037-26-5	2	%	89.0	99.4	107	----	----
4-Bromofluorobenzene	460-00-4	2	%	93.0	99.3	102	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	89.2	91.2	90.2	----	----
13C8-PFOA	----	0.02	%	95.9	92.2	91.7	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Darwin, NATA accreditation no. 825, site no. 25820.

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF

(WATER) MW023: Enterococci by Membrane Filtration



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2533902	Page	: 1 of 16
Client	: JACOBS GROUP (AUSTRALIA) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: DANIEL COFFEY	Telephone	: +61-2-8784 8555
Project	: IW272400	Date Samples Received	: 31-Oct-2025
Site	: ----	Issue Date	: 06-Nov-2025
Sampler	: DANIEL COFFEY	No. of samples received	: 14
Order number	: 540003296	No. of samples analysed	: 14

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, where applicable to the methodology, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Matrix: WATER

[illegible]



Matrix: **WATER**

Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP025: Oxygen - Dissolved (DO) - Analysis Holding Time Compliance							
Clear Plastic Bottle - Natural							
MW01_251028,	MW03_251028,	----	----	----	31-Oct-2025	28-Oct-2025	3
MW04_251028,	QC101_251028,						
MW02_251029,	MW05_251029,						
MW06_251029,	SW08_251029,						
SW01_251029,	SW04_251029						
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural							
MW01_251028,	MW03_251028,	----	----	----	31-Oct-2025	30-Oct-2025	1
MW04_251028,	QC101_251028,						
MW02_251029,	MW05_251029,						
MW06_251029,	SW08_251029,						
SW01_251029,	SW04_251029						
MW006: Thermotolerant Coliforms & E.coli by MF							
Sterile Plastic Bottle - Sodium Thiosulfate							
MW01_251028,	MW03_251028,	----	----	----	30-Oct-2025	29-Oct-2025	1
MW04_251028,	QC101_251028,						
MW02_251029,	MW05_251029,						
MW06_251029,	SW08_251029,						
SW01_251029,	SW04_251029,						
QC201_251028							
MW023: Enterococci by Membrane Filtration							
Sterile Plastic Bottle - Sodium Thiosulfate							
MW01_251028,	MW03_251028,	----	----	----	30-Oct-2025	29-Oct-2025	1
MW04_251028,	QC101_251028,						
MW02_251029,	MW05_251029,						
MW06_251029,	SW08_251029,						
SW01_251029,	SW04_251029,						
QC201_251028							

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS) - Continued						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatle Fraction	EP071	0	14	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results. This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

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

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P)								
MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	28-Oct-2025	✗
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✓
EA045: Turbidity								
Clear Plastic Bottle - Natural (EA045)								
MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	30-Oct-2025	✗



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA065: Total Hardness as CaCO3							
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✔
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	11-Nov-2025	✔
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	01-Nov-2025	25-Nov-2025	✔
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	01-Nov-2025	25-Nov-2025	✔
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✔
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	26-Apr-2026	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	05-Nov-2025	25-Nov-2025	✔	
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✔	
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✔	
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✔	
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) MW01_251028, MW04_251028, MW06_251029, SW01_251029, MW03_251028, QC101_251028, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	01-Nov-2025	30-Oct-2025	✘	
Clear Plastic Bottle - Natural (EK057G) MW02_251029, MW05_251029	28-Oct-2025	----	----	----	31-Oct-2025	30-Oct-2025	✘	



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC101_251028, MW05_251029	MW02_251029,	28-Oct-2025	----	----	----	01-Nov-2025	25-Nov-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) MW01_251028, MW04_251028, SW08_251029, SW04_251029	MW03_251028, MW06_251029, SW01_251029,	28-Oct-2025	----	----	----	03-Nov-2025	25-Nov-2025	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	01-Nov-2025	25-Nov-2025	✓	03-Nov-2025	25-Nov-2025	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	01-Nov-2025	25-Nov-2025	✓	03-Nov-2025	25-Nov-2025	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	01-Nov-2025	30-Oct-2025	✗
EP008: Chlorophyll a & Pheophytin a								
Opaque Plastic Bottle - Unpreserved (EP008) MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029,	MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	----	----	----	31-Oct-2025	30-Oct-2025	✗



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	----	----	----	31-Oct-2025	28-Oct-2025	✖	
EP030: Biochemical Oxygen Demand (BOD)								
Clear Plastic Bottle - Natural (EP030) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	----	----	----	31-Oct-2025	30-Oct-2025	✖	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	04-Nov-2025	04-Nov-2025	✔	05-Nov-2025	14-Dec-2025	✔	
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	04-Nov-2025	04-Nov-2025	✔	05-Nov-2025	14-Dec-2025	✔	
Amber VOC Vial - Sulfuric Acid (EP080) MW01_251028, MW03_251028, MW04_251028, QC301_251028, QC501_251029, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	04-Nov-2025	11-Nov-2025	✔	04-Nov-2025	11-Nov-2025	✔	



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
MW01_251028, MW04_251028, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	04-Nov-2025	04-Nov-2025	✔	05-Nov-2025	14-Dec-2025	✔
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01_251028, MW04_251028, QC501_251029, MW02_251029, MW06_251029, SW01_251029, MW03_251028, QC301_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029	28-Oct-2025	04-Nov-2025	11-Nov-2025	✔	04-Nov-2025	11-Nov-2025	✔
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01_251028, MW04_251028, QC501_251029, QC101_251028, MW05_251029, SW08_251029, SW04_251029, MW03_251028, QC301_251028, QC601_251029, MW02_251029, MW06_251029, SW01_251029	28-Oct-2025	04-Nov-2025	11-Nov-2025	✔	04-Nov-2025	11-Nov-2025	✔
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
MW01_251028, MW04_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029, MW03_251028, QC301_251028, MW02_251029, MW06_251029, SW01_251029	28-Oct-2025	03-Nov-2025	26-Apr-2026	✔	05-Nov-2025	26-Apr-2026	✔
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
MW01_251028, MW04_251028, QC101_251028, MW05_251029, SW08_251029, SW04_251029, MW03_251028, QC301_251028, MW02_251029, MW06_251029, SW01_251029	28-Oct-2025	03-Nov-2025	26-Apr-2026	✔	05-Nov-2025	26-Apr-2026	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	03-Nov-2025	26-Apr-2026	✔	05-Nov-2025	26-Apr-2026	✔	
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) MW01_251028, MW03_251028, MW04_251028, QC301_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	03-Nov-2025	26-Apr-2026	✔	05-Nov-2025	26-Apr-2026	✔	
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) MW01_251028, MW03_251028, MW04_251028, QC301_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029	28-Oct-2025	03-Nov-2025	26-Apr-2026	✔	05-Nov-2025	26-Apr-2026	✔	
MW006: Thermotolerant Coliforms & E.coli by MF								
Sterile Plastic Bottle - Sodium Thiosulfate (MW006) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029, QC201_251028	28-Oct-2025	----	----	----	30-Oct-2025	29-Oct-2025	✖	
MW023: Enterococci by Membrane Filtration								
Sterile Plastic Bottle - Sodium Thiosulfate (MW023) MW01_251028, MW03_251028, MW04_251028, QC101_251028, MW02_251029, MW05_251029, MW06_251029, SW08_251029, SW01_251029, SW04_251029, QC201_251028	28-Oct-2025	----	----	----	30-Oct-2025	29-Oct-2025	✖	



Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	3	24	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	4	33	12.12	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	22	13.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	34	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Turbidity	EA045	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	24	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	33	6.06	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	22	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chlorophyll a and Pheophytin a	EP008	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	15	13.33	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	15.00	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	34	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Turbidity	EA045	3	20	15.00	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	33	6.06	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chlorophyll a and Pheophytin a	EP008	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	34	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Turbidity	EA045	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	33	6.06	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Nitrite as N by Discrete Analyser	EK057G	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	34	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM Schedule B(3)
Turbidity	EA045	WATER	In house: Referenced to APHA 2130 B. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. Auto Titrator) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45µm filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ -2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Trivalent Chromium - Dissolved	EG049G-F	WATER	In house: Referenced to APHA 3500 Cr-B & 3120/3125. Trivalent Chromium is the difference between total dissolved and dissolved hexavalent chromium.



Analytical Methods	Method	Matrix	Method Descriptions
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	WATER	In house: Referenced to APHA 3500 Cr-A & B. Samples are 0.45µm filtered prior to analysis. Hexavalent chromium is determined directly on water sample by Discrete Analyser as received by pH adjustment and colour development using dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3).
Fluoride by Auto Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
Chlorophyll a and Pheophytin a	EP008	WATER	In house: Referenced to APHA 10200 H. The pigments are extracted into aqueous acetone. The optical density of the extract before and after acidification at both 664 nm and 665 nm is determined spectrometrically.
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).



Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction (SPE) followed by negative mode LC-ESI-MS/MS using MRM and isotope dilution or internal standard quantitation. Isotope dilution standards (where commercially available) and surrogates are added to the sample container. The entire contents are transferred to a weak anion exchange (WAX) solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Data quality objectives for internal standard recoveries are based on US EPA method 1633.
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.5
Enumeration of Enterococci by Membrane Filtration	MW023	WATER	AS4276.9
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.



QUALITY CONTROL REPORT

Work Order : **ES2533902**

Page : 1 of 11

Client : **JACOBS GROUP (AUSTRALIA) PTY LTD**

Laboratory : Environmental Division Sydney

Contact : **DANIEL COFFEY**

Contact : Jackie Chau

Address : **LEVEL 2 25 PARAP ROAD**
PARAP NT 0804

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : ----

Telephone : +61-2-8784 8555

Project : **IW272400**

Date Samples Received : 31-Oct-2025

Order number : **540003296**

Date Analysis Commenced : 30-Oct-2025

C-O-C number : ----

Issue Date : 06-Nov-2025

Sampler : **DANIEL COFFEY**

Site : ----

Quote number : **ES24SINKNI0008**

No. of samples received : **14**

No. of samples analysed : **14**



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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Darwin Microbiology, Woolner, NT



General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6976207)									
ES2533902-013	SW04_251029	EA005-P: pH Value	----	0.01	pH Unit	6.22	6.22	0.0	0% - 20%
ES2533902-001	MW01_251028	EA005-P: pH Value	----	0.01	pH Unit	6.20	6.20	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6976206)									
EN2518515-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4180	4150	0.6	0% - 20%
ES2533902-001	MW01_251028	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	9770	9750	0.2	0% - 20%
EA045: Turbidity (QC Lot: 6976047)									
ES2533658-030	Anonymous	EA045: Turbidity	----	0.1	NTU	2.8	2.7	5.1	0% - 20%
ES2533902-011	SW08_251029	EA045: Turbidity	----	0.1	NTU	37.2	32.0	15.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6976204)									
EN2518514-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	164	165	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	164	165	0.0	0% - 20%
ES2533902-001	MW01_251028	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	89	91	1.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	89	91	1.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6976209)									
ES2533902-013	SW04_251029	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 6976209) - continued									
ES2533902-013	SW04_251029	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	27	29	7.7	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	27	29	7.7	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6972083)									
ES2533861-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	8	8	0.0	No Limit
ES2533902-001	MW01_251028	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	246	235	4.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6972082)									
ES2533861-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	33	33	0.0	0% - 20%
ES2533902-001	MW01_251028	ED045G: Chloride	16887-00-6	1	mg/L	3680	3630	1.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6972087)									
ES2533902-012	SW01_251029	ED045G: Chloride	16887-00-6	1	mg/L	29	29	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6973652)									
ES2533902-001	MW01_251028	ED093F: Calcium	7440-70-2	1	mg/L	92	92	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	147	148	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1810	1820	0.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	58	58	0.0	0% - 20%
ES2533948-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	9	9	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	4	4	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6973651)									
ES2533902-001	MW01_251028	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.013	0.014	8.8	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2533948-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6973653)									
ES2533902-002	MW03_251028	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2533902-013	SW04_251029	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6974848)									
ES2533902-001	MW01_251028	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2533902-013	SW04_251029	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 6976208)									
ES2533902-013	SW04_251029	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.2	0.2	0.0	No Limit
ES2533902-001	MW01_251028	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.4	0.4	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6973057)									
EN2518511-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.12	0.0	0% - 50%
EN2518595-004	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.05	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6973059)									
ES2533902-009	MW05_251029	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.16	0.16	0.0	0% - 50%
ES2534213-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.02	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6972085)									
ES2533902-012	SW01_251029	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2533902-001	MW01_251028	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6973058)									
ES2533902-009	MW05_251029	EK059G: Nitrite + Nitrate as N	----	0.01 (0.10)*	mg/L	<0.10	<0.10	0.0	No Limit
ES2534213-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.51	0.51	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6973062)									
ES2533902-010	MW06_251029	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.4	0.0	No Limit
ES2534213-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6973061)									
EN2518513-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.09	63.8	No Limit
EN2518595-006	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.45	0.43	5.6	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6973063)									
ES2533902-010	MW06_251029	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.01	0.02	0.0	No Limit
ES2534213-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.19	0.18	0.0	0% - 50%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6972086)									
ES2533902-012	SW01_251029	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2533902-001	MW01_251028	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6972034)									
ES2532577-043	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	5	85.7	No Limit
ES2533902-013	SW04_251029	EP030: Biochemical Oxygen Demand	----	2	mg/L	2	3	40.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6974410)									
ES2533902-001	MW01_251028	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2533902-011	SW08_251029	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6974410)									

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 Work Order : ES2533902
 Client : JACOBS GROUP (AUSTRALIA) PTY LTD
 Project : IW272400



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6974410) - continued									
ES2533902-001	MW01_251028	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2533902-011	SW08_251029	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6974410)									
ES2533902-001	MW01_251028	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
ES2533902-011	SW08_251029	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



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

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6976207)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6976206)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	97.8	90.2	111
EA045: Turbidity (QCLot: 6976047)								
EA045: Turbidity	----	0.1	NTU	<0.1	4 NTU	100	90.0	110
				<0.1	40 NTU	99.8	91.0	105
				<0.1	400 NTU	99.8	90.0	110
ED037P: Alkalinity by PC Titrator (QCLot: 6976204)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	94.3	81.0	115
				----	50 mg/L	105	80.0	128
ED037P: Alkalinity by PC Titrator (QCLot: 6976209)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	93.3	81.0	115
				----	50 mg/L	105	80.0	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6972083)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	82.0	122
				<1	500 mg/L	91.4	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6972082)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	99.3	80.9	127
				<1	1000 mg/L	104	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 6972087)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	99.9	80.9	127
				<1	1000 mg/L	106	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6973652)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	88.9	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.5	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.5	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.6	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6973651)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.0	85.0	114

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020F: Dissolved Metals by ICP-MS (QCLot: 6973651) - continued								
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.9	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.2	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.3	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.1	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.7	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 6973653)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.9	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 6974848)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	104	86.0	112
EK040P: Fluoride by PC Titrator (QCLot: 6976208)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	96.1	82.0	116
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6973057)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	98.4	90.0	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6973059)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	99.4	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6972085)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6973058)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6973062)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1 <0.1	5 mg/L 2.5 mg/L	92.6 94.3	69.0 70.0	123 123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6973061)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01 <0.01	2.21 mg/L 0.5 mg/L	96.8 99.2	71.3 71.3	126 126
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6973063)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01 <0.01	2.21 mg/L 0.5 mg/L	93.0 78.2	71.3 71.3	126 126
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6972086)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	99.2	85.0	117
EP008: Chlorophyll (QCLot: 6972635)								
EP008: Chlorophyll a	----	1	mg/m³	<1	20 mg/m³	101	70.0	130
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6972034)								



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6972034) - continued								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	95.0	74.0	112
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6974184)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.3	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	64.5	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	68.5	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	67.7	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	97.3	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	77.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	90.8	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	77.9	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	81.8	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	83.7	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	84.8	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	81.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	96.3	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	99.3	59.9	118
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	79.1	61.2	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	74.8	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6974186)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	56.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	84.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	74.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6974410)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.3	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6974186)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	62.7	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	64.4	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	111	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6974410)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.1	75.0	127
EP080: BTEXN (QCLot: 6974410)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	87.8	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	86.3	73.5	120



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP080: BTEXN (QCLot: 6974410) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	87.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	87.3	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.4	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	80.8	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6975443)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	0.25 µg/L	103	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	94.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	99.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	102	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.25 µg/L	106	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	99.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6975443)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	113	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	129	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	102	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.1	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	90.5	72.0	134
EP231X: Perfluorotridecanoic acid (PFTriDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	82.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	117	71.0	132
EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	0.25 µg/L	121	62.9	136
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6975443)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	109	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	121	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	111	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	119	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	130	57.6	145

Matrix Spike (MS) Report

Sub-Matrix: WATER

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6972083)							
ES2533861-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	108	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6972082)							
ES2533861-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	109	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6972087)							
ES2533902-012	SW01_251029	ED045G: Chloride	16887-00-6	250 mg/L	118	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6973651)							
EN2518560-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	93.7	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	94.2	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	97.6	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.2	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	106	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	95.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6973653)							
ES2533902-001	MW01_251028	EG035F: Mercury	7439-97-6	0.01 mg/L	86.2	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6974848)							
ES2533902-001	MW01_251028	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	114	70.0	130
EK040P: Fluoride by PC Titrator (QCLot: 6976208)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK040P: Fluoride by PC Titrator (QCLot: 6976208) - continued							
ES2533902-002	MW03_251028	EK040P: Fluoride	16984-48-8	5 mg/L	99.6	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6973057)							
EN2518511-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	112	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6973059)							
ES2533902-009	MW05_251029	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	113	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6972085)							
ES2533902-001	MW01_251028	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	113	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6973058)							
ES2533902-009	MW05_251029	EK059G: Nitrite + Nitrate as N	----	5 mg/L	96.2	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6973062)							
ES2533902-011	SW08_251029	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	99.3	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6973061)							
EN2518513-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	78.0	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6973063)							
ES2533902-011	SW08_251029	EK067G: Total Phosphorus as P	----	1 mg/L	81.1	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6972086)							
ES2533902-001	MW01_251028	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	90.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6974410)							
ES2533902-001	MW01_251028	EP080: C6 - C9 Fraction	----	325 µg/L	117	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6974410)							
ES2533902-001	MW01_251028	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	109	70.0	130
EP080: BTEXN (QCLot: 6974410)							
ES2533902-001	MW01_251028	EP080: Benzene	71-43-2	25 µg/L	94.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	109	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	115	70.0	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	116	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	113	70.0	130



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2534346**

Client	: JACOBS GROUP (AUSTRALIA) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: DANIEL COFFEY	Contact	: Jackie Chau
Address	: LEVEL 2 25 PARAP ROAD PARAP NT 0804	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel.coffey@jacobs.com	E-mail	: jackie.chau@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: IW272400	Page	: 1 of 3
Order number	: 540003296	Quote number	: ES2024SINKNI0008_V2 (ES24SINKNI0008_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: DANIEL COFFEY		

Dates

Date Samples Received	: 04-Nov-2025 11:30	Issue Date	: 04-Nov-2025
Client Requested Due Date	: 10-Nov-2025	Scheduled Reporting Date	: 10-Nov-2025

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 6.2°C 24.6°C 32.0°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

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

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA045 Turbidity	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EP008 Chlorophyll a	WATER - EP025 Dissolved Oxygen (DO)	WATER - EP030 Biochemical Oxygen Demand (BOD)	WATER - MW023 Enterococci - Enumeration by Membrane	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2534346-001	03-Nov-2025 00:00	SW06_251103	✓	✓	✓	✓	✓	✓	✓
ES2534346-002	03-Nov-2025 00:00	SW05_251103	✓	✓	✓	✓	✓	✓	✓
ES2534346-003	03-Nov-2025 00:00	QC102_251103	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EK071G Reactive Phosphorus by Discrete analyser	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - MW006 (FC) Thermotolerant Coliforms by Membrane Filtration	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - NT-12 General Water Suite	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2534346-001	03-Nov-2025 00:00	SW06_251103	✓	✓	✓	✓	✓	✓	
ES2534346-002	03-Nov-2025 00:00	SW05_251103	✓	✓	✓	✓	✓	✓	
ES2534346-003	03-Nov-2025 00:00	QC102_251103	✓	✓	✓	✓	✓	✓	
ES2534346-004	03-Nov-2025 00:00	QC302_251103							✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231 PFAS - Short Suite (12 analytes)
ES2534346-004	03-Nov-2025 00:00	QC302_251103	✓



Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EA005-P: pH by Auto Titrator							
QC102_251103	Clear Plastic Bottle - Natural	----	03-Nov-2025	04-Nov-2025	✖	----	----
SW05_251103	Clear Plastic Bottle - Natural	----	03-Nov-2025	04-Nov-2025	✖	----	----
SW06_251103	Clear Plastic Bottle - Natural	----	03-Nov-2025	04-Nov-2025	✖	----	----
EP025: Oxygen - Dissolved							
QC102_251103	Clear Plastic Bottle - Natural	----	03-Nov-2025	04-Nov-2025	✖	----	----
SW05_251103	Clear Plastic Bottle - Natural	----	03-Nov-2025	04-Nov-2025	✖	----	----
SW06_251103	Clear Plastic Bottle - Natural	----	03-Nov-2025	04-Nov-2025	✖	----	----

Requested Deliverables

DANIEL COFFEY

- *AU Certificate of Analysis - NATA (COA)	Email	daniel.coffey@jacobs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	daniel.coffey@jacobs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	daniel.coffey@jacobs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	daniel.coffey@jacobs.com
- A4 - AU Tax Invoice (INV)	Email	daniel.coffey@jacobs.com
- Chain of Custody (CoC) (COC)	Email	daniel.coffey@jacobs.com
- EDI Format - ESDAT (ESDAT)	Email	daniel.coffey@jacobs.com

JACOBS INVOICES

- A4 - AU Tax Invoice (INV)	Email	auapinvoices@jacobs.com
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Inter-Laboratory Testing

Analysis conducted by ALS Darwin, NATA accreditation no. 825, site no. 25820.

(WATER) MW023: Enterococci by Membrane Filtration

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF



CERTIFICATE OF ANALYSIS

Work Order : **ES2534346**
Client : **JACOBS GROUP (AUSTRALIA) PTY LTD**
Contact : DANIEL COFFEY
Address : LEVEL 2 25 PARAP ROAD
PARAP NT 0804
Telephone : ----
Project : IW272400
Order number : 540003296
C-O-C number : ----
Sampler : DANIEL COFFEY
Site : ----
Quote number : ES24SINKNI0008_V2
No. of samples received : 4
No. of samples analysed : 4

Page : 1 of 10
Laboratory : Environmental Division Sydney
Contact : Jackie Chau
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 04-Nov-2025 11:30
Date Analysis Commenced : 03-Nov-2025
Issue Date : 10-Nov-2025 10:42



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Darwin Microbiology, Woolner, NT



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.

- MF = membrane filtration
- CFU = colony forming unit
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- EP075 (SIM): 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), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol 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.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- MW023 is ALS's internal code and is equivalent to AS4276.9.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- 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.
- 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	SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time					03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.31	7.04	7.10	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		710	494	495	----	----
EA016: Calculated TDS (from Electrical Conductivity)									
Total Dissolved Solids (Calc.)	----	1	mg/L		462	321	322	----	----
EA045: Turbidity									
Turbidity	----	0.1	NTU		8.8	8.2	7.7	----	----
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3	----	1	mg/L		108	67	65	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		66	45	50	----	----
Total Alkalinity as CaCO3	----	1	mg/L		66	45	50	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		24	11	11	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		190	125	128	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		22	17	16	----	----
Magnesium	7439-95-4	1	mg/L		13	6	6	----	----
Sodium	7440-23-5	1	mg/L		108	67	65	----	----
Potassium	7440-09-7	1	mg/L		5	7	7	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.004	0.002	0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	----	----

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time				03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----	
				Result	Result	Result	Result	----	
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----	
Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.002	----	----	
Zinc	7440-66-6	0.005	mg/L	0.017	0.009	0.010	----	----	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
EG049F: Dissolved Trivalent Chromium									
Trivalent Chromium	16065-83-1	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EG050F: Dissolved Hexavalent Chromium									
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	0.3	0.2	0.2	----	----	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.08	0.07	----	----	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	0.03	<0.01	<0.01	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.03	<0.01	<0.01	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	1.3	1.2	----	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	0.6	1.3	1.2	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.06	0.33	0.32	----	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----	
EN055: Ionic Balance									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time					03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----
					Result	Result	Result	Result	----
EN055: Ionic Balance - Continued									
ø Total Anions	----	0.01	meq/L		7.18	4.65	4.84	----	----
ø Total Cations	----	0.01	meq/L		----	----	4.45	----	----
ø Total Cations	----	0.01	meq/L		6.99	4.44	----	----	----
ø Ionic Balance	----	0.01	%		----	----	4.08	----	----
ø Ionic Balance	----	0.01	%		1.30	2.41	----	----	----
EP008: Chlorophyll a & Pheophytin a									
Chlorophyll a	----	1	mg/m³		12	1	<1	----	----
EP025: Oxygen - Dissolved (DO)									
Dissolved Oxygen	----	0.1	mg/L		7.4	4.0	4.4	----	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		5	11	10	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time				03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	220	220	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	220	220	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	210	180	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	210	180	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time				03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----
				Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.1	0.1	0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.57	0.52	0.53	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.28	0.26	0.26	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.12	0.12	0.12	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.01	0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	<0.05	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time				03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----
				Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.23	0.27	0.29	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	1.32	1.28	1.31	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	1.32	1.28	1.31	<0.01	----

MW006: Thermotolerant Coliforms & E.coli by MF



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06_251103	SW05_251103	QC102_251103	QC302_251103	----
Sampling date / time					03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	03-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2534346-001	ES2534346-002	ES2534346-003	ES2534346-004	-----
					Result	Result	Result	Result	----
MW006: Thermotolerant Coliforms & E.coli by MF - Continued									
<i>Escherichia coli</i>	----	1	CFU/100mL		150	220	160	----	----
MW023: Enterococci by Membrane Filtration									
<i>Enterococci</i>	----	1	CFU/100mL		~5	1800	1600	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		25.6	23.1	20.2	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		56.0	47.7	43.1	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%		69.6	71.0	56.3	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		79.4	62.4	56.4	----	----
Anthracene-d10	1719-06-8	1.0	%		87.3	79.3	64.5	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		89.4	81.6	66.3	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		135	134	114	121	----
Toluene-D8	2037-26-5	2	%		120	127	105	106	----
4-Bromofluorobenzene	460-00-4	2	%		126	131	107	113	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		88.1	87.2	86.5	90.6	----
13C8-PFOA	----	0.02	%		82.7	86.0	83.9	85.9	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Darwin, NATA accreditation no. 825, site no. 25820.

(WATER) MW023: Enterococci by Membrane Filtration

(WATER) MW006: Thermotolerant Coliforms & E.coli by MF



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2534346	Page	: 1 of 12
Client	: JACOBS GROUP (AUSTRALIA) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: DANIEL COFFEY	Telephone	: +61-2-8784 8555
Project	: IW272400	Date Samples Received	: 04-Nov-2025
Site	: ----	Issue Date	: 10-Nov-2025
Sampler	: DANIEL COFFEY	No. of samples received	: 4
Order number	: 540003296	No. of samples analysed	: 4

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO ₄ 2- by DA	EN2518672--001	Anonymous	Sulfate as SO ₄ - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED045G: Chloride by Discrete Analyser	EN2518672--001	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method			Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural	SW06_251103, QC102_251103	SW05_251103,	----	----	----	05-Nov-2025	03-Nov-2025	2
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural	SW06_251103, QC102_251103	SW05_251103,	----	----	----	04-Nov-2025	03-Nov-2025	1

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	17	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	13	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)						
Conductivity by Auto Titrator	EA010-P	3	37	8.11	8.33	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	17	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	13	0.00	5.00	NEPM 2013 B3 & ALS QC Standard



Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	03-Nov-2025	✗
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
EA045: Turbidity								
Clear Plastic Bottle - Natural (EA045) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	04-Nov-2025	05-Nov-2025	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	17-Nov-2025	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Filtered; Lab-acidified (ED093F) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	02-May-2026	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	07-Nov-2025	01-Dec-2025	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	05-Nov-2025	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	01-Dec-2025	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	05-Nov-2025	01-Dec-2025	✓	05-Nov-2025	01-Dec-2025	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	05-Nov-2025	01-Dec-2025	✓	05-Nov-2025	01-Dec-2025	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	05-Nov-2025	05-Nov-2025	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP008: Chlorophyll a & Pheophytin a								
Opaque Plastic Bottle - Unpreserved (EP008) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	04-Nov-2025	05-Nov-2025	✓
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	04-Nov-2025	03-Nov-2025	✗
EP030: Biochemical Oxygen Demand (BOD)								
Clear Plastic Bottle - Natural (EP030) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	04-Nov-2025	05-Nov-2025	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	06-Nov-2025	10-Nov-2025	✓	06-Nov-2025	16-Dec-2025	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	06-Nov-2025	10-Nov-2025	✓	07-Nov-2025	16-Dec-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	04-Nov-2025	17-Nov-2025	✓	05-Nov-2025	17-Nov-2025	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	06-Nov-2025	10-Nov-2025	✓	07-Nov-2025	16-Dec-2025	✓
Amber VOC Vial - Sulfuric Acid (EP080) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	04-Nov-2025	17-Nov-2025	✓	05-Nov-2025	17-Nov-2025	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	04-Nov-2025	17-Nov-2025	✓	05-Nov-2025	17-Nov-2025	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	05-Nov-2025	02-May-2026	✓	06-Nov-2025	02-May-2026	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	05-Nov-2025	02-May-2026	✓	06-Nov-2025	02-May-2026	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	05-Nov-2025	02-May-2026	✔	06-Nov-2025	02-May-2026	✔
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	05-Nov-2025	02-May-2026	✔	06-Nov-2025	02-May-2026	✔
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) SW06_251103, QC102_251103,	SW05_251103, QC302_251103	03-Nov-2025	05-Nov-2025	02-May-2026	✔	06-Nov-2025	02-May-2026	✔
MW006: Thermotolerant Coliforms & E.coli by MF								
Sterile Plastic Bottle - Sodium Thiosulfate (MW006) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	03-Nov-2025	04-Nov-2025	✔
MW023: Enterococci by Membrane Filtration								
Sterile Plastic Bottle - Sodium Thiosulfate (MW023) SW06_251103, QC102_251103	SW05_251103,	03-Nov-2025	----	----	----	03-Nov-2025	04-Nov-2025	✔



Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	7	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	37	10.81	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	20.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	17	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	18	11.11	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.11	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	7	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	13	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Turbidity	EA045	2	18	11.11	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Chlorophyll a and Pheophytin a	EP008	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	37	8.11	8.33	✖	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification .

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	9	33.33	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	7	28.57	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Turbidity	EA045	3	18	16.67	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Biochemical Oxygen Demand (BOD)	EP030	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chlorophyll a and Pheophytin a	EP008	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Turbidity	EA045	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Nitrite as N by Discrete Analyser	EK057G	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	17	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.11	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	13	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM Schedule B(3)
Turbidity	EA045	WATER	In house: Referenced to APHA 2130 B. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. Auto Titrator) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45µm filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ -2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Trivalent Chromium - Dissolved	EG049G-F	WATER	In house: Referenced to APHA 3500 Cr-B & 3120/3125. Trivalent Chromium is the difference between total dissolved and dissolved hexavalent chromium.



Analytical Methods	Method	Matrix	Method Descriptions
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	WATER	In house: Referenced to APHA 3500 Cr-A & B. Samples are 0.45µm filtered prior to analysis. Hexavalent chromium is determined directly on water sample by Discrete Analyser as received by pH adjustment and colour development using dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3).
Fluoride by Auto Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
Chlorophyll a and Pheophytin a	EP008	WATER	In house: Referenced to APHA 10200 H. The pigments are extracted into aqueous acetone. The optical density of the extract before and after acidification at both 664 nm and 665 nm is determined spectrometrically.
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Biochemical Oxygen Demand (BOD)	EP030	WATER	In house: Referenced to APHA 5210 B. The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM Schedule B(3).



Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction (SPE) followed by negative mode LC-ESI-MS/MS using MRM and isotope dilution or internal standard quantitation. Isotope dilution standards (where commercially available) and surrogates are added to the sample container. The entire contents are transferred to a weak anion exchange (WAX) solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Data quality objectives for internal standard recoveries are based on US EPA method 1633.
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.5
Enumeration of Enterococci by Membrane Filtration	MW023	WATER	AS4276.9
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.



QUALITY CONTROL REPORT

Work Order	: ES2534346	Page	: 1 of 11
Client	: JACOBS GROUP (AUSTRALIA) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: DANIEL COFFEY	Contact	: Jackie Chau
Address	: LEVEL 2 25 PARAP ROAD PARAP NT 0804	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: IW272400	Date Samples Received	: 04-Nov-2025
Order number	: 540003296	Date Analysis Commenced	: 03-Nov-2025
C-O-C number	: ----	Issue Date	: 10-Nov-2025
Sampler	: DANIEL COFFEY		
Site	: ----		
Quote number	: ES24SINKNI0008_V2		
No. of samples received	: 4		
No. of samples analysed	: 4		



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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Prasanna Ganta	Team Leader - Microbiology/Phycology	Darwin Microbiology, Woolner, NT



General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6980649)									
ES2534128-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.73	7.73	0.0	0% - 20%
ES2534128-009	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.79	7.79	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6980647)									
EN2518665-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3840	3850	0.3	0% - 20%
ES2534346-002	SW05_251103	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	494	492	0.4	0% - 20%
ES2534128-009	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	454	453	0.0	0% - 20%
ES2534497-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	6390	6200	3.1	0% - 20%
EA045: Turbidity (QC Lot: 6978235)									
ES2534306-001	Anonymous	EA045: Turbidity	----	0.1	NTU	10.2	10.1	1.0	0% - 20%
ES2534483-002	Anonymous	EA045: Turbidity	----	0.1	NTU	0.8	0.8	0.0	No Limit
ED037P: Alkalinity by PC Titrator (QC Lot: 6980651)									
ES2534157-007	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	98	98	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	98	98	0.0	0% - 20%
ES2534157-016	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	166	167	0.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	166	167	0.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6980652)									
ES2534346-002	SW05_251103	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 6980652) - continued									
ES2534346-002	SW05_251103	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	45	47	3.7	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	45	47	3.7	0% - 20%
ES2534497-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	396	402	1.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	396	402	1.6	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6979538)									
ES2534346-003	QC102_251103	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	11	11	0.0	0% - 50%
EN2518660-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6979537)									
ES2534346-003	QC102_251103	ED045G: Chloride	16887-00-6	1	mg/L	128	127	0.8	0% - 20%
EN2518660-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	202	214	5.8	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6979162)									
ES2534462-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	67	67	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	98	97	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	118	116	1.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	11	0.0	0% - 50%
ES2534346-001	SW06_251103	ED093F: Calcium	7440-70-2	1	mg/L	22	21	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	13	13	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	108	107	1.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6979161)									
ES2534352-007	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2534346-001	SW06_251103	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.004	0.005	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.017	<0.005	109	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6979160)									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 6979160) - continued									
ES2534352-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2534346-001	SW06_251103	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6981896)									
ES2534346-001	SW06_251103	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 6980648)									
EN2518665-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	1.1	1.1	0.0	0% - 50%
ES2534497-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.5	0.5	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6979532)									
EN2518665-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.06	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6979536)									
ES2534346-003	QC102_251103	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EN2518660-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6979531)									
EN2518665-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6979529)									
EN2518665-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.5	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6979528)									
EN2518665-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.05	27.6	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6979540)									
EN2518672-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2534517-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 6978047)									
EN2518660-001	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	5	11	75.0	No Limit
ES2534275-016	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	<2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6977946)									
ES2526723-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2534286-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6977946)									
ES2526723-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2534286-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6977946)									
ES2526723-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6977946) - continued									
ES2526723-007	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2534286-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



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

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA005P: pH by PC Titrator (QCLot: 6980649)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6980647)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	99.2	89.9	110
				<1	2100 µS/cm	103	90.2	111
EA045: Turbidity (QCLot: 6978235)								
EA045: Turbidity	----	0.1	NTU	<0.1	4 NTU	100	90.0	110
				<0.1	40 NTU	97.2	91.0	105
				<0.1	400 NTU	99.5	90.0	110
ED037P: Alkalinity by PC Titrator (QCLot: 6980651)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	93.0	81.0	115
				----	50 mg/L	96.6	80.0	128
ED037P: Alkalinity by PC Titrator (QCLot: 6980652)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	100	81.0	115
				----	50 mg/L	103	80.0	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6979538)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	106	82.0	122
				<1	500 mg/L	93.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6979537)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	107	80.9	127
				<1	1000 mg/L	90.3	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6979162)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.1	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	107	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	104	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	100	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6979161)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.6	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.4	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.8	81.0	111



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020F: Dissolved Metals by ICP-MS (QCLot: 6979161) - continued								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.4	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	89.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.9	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 6979160)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.8	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 6981896)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	100	86.0	112
EK040P: Fluoride by PC Titrator (QCLot: 6980648)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	92.5	82.0	116
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6979532)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	108	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6979536)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	97.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6979531)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	97.7	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6979529)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	89.2	69.0	123
				<0.1	2.5 mg/L	98.4	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6979528)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	98.8	71.3	126
				<0.01	0.5 mg/L	86.5	71.3	126
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6979540)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	91.9	85.0	117
EP008: Chlorophyll (QCLot: 6979037)								
EP008: Chlorophyll a	----	1	mg/m³	<1	20 mg/m³	98.5	70.0	130
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 6978047)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	86.0	74.0	112
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6977873)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.7	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	90.5	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	93.4	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	96.1	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	70.2	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	69.0	64.3	116



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6977873) - continued								
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	73.8	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	73.3	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	73.7	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	73.6	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	5 µg/L	75.3	61.7	119
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	70.2	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	73.3	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.2	59.9	118
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	71.7	61.2	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	71.9	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6977872)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	76.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	89.8	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	95.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6977946)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	99.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6977872)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	75.3	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	98.9	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	65.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6977946)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	83.6	75.0	127
EP080: BTEXN (QCLot: 6977946)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.7	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	82.0	73.8	122
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	84.5	73.0	122
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	84.3	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	82.2	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6979976)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	0.02	µg/L	<0.02	0.25 µg/L	95.4	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	88.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	95.1	71.0	127



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6979976) - continued								
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	88.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	99.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	86.1	65.0	140
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	0.02	µg/L	<0.02	0.25 µg/L	104	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	97.1	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6979976)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	109	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	98.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	126	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	79.9	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	79.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	122	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	97.8	71.0	132
EP231X: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05	µg/L	<0.05	0.25 µg/L	112	62.9	136
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 6979976)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	106	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	102	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	113	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	123	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	86.9	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	105	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6979976)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	110	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	90.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	95.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	122	71.4	144



Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6979538)							
EN2518672-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6979537)							
EN2518672-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6979161)							
ES2534346-002	SW05_251103	EG020A-F: Arsenic	7440-38-2	1 mg/L	94.9	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	99.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	97.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.1	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	99.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	94.4	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	95.5	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6979160)							
EN2518665-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	88.4	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6981896)							
ES2534346-001	SW06_251103	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	101	70.0	130
EK040P: Fluoride by PC Titrator (QCLot: 6980648)							
ES2534346-001	SW06_251103	EK040P: Fluoride	16984-48-8	5 mg/L	97.5	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6979532)							
EN2518665-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	127	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6979536)							
EN2518672-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	120	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6979531)							
EN2518665-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	106	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6979529)							
ES2534346-001	SW06_251103	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	97.7	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6979528)							
ES2534346-001	SW06_251103	EK067G: Total Phosphorus as P	----	1 mg/L	85.5	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6979540)							
EN2518672-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	112	70.0	130



Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
Laboratory sample ID	Sample ID	Method: Compound	CAS Number				
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6977946)							
ES2526723-007	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	111	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6977946)							
ES2526723-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	70.0	130
EP080: BTEXN (QCLot: 6977946)							
ES2526723-007	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	105	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	112	70.0	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	111	70.0	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	116	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	120	70.0	130

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Sample Receipt Advice

Company name:	Jacobs Group (Australia) P/L NSW
Contact name:	Daniel Coffey
Project name:	IW272400
Project ID:	IW272400
Turnaround time:	5 Day
Date/Time received	Nov 3, 2025 2:50 PM
Eurofins reference	1287446

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✗ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✗ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: Andrew.Black@eurofinsanz.com

Results will be delivered electronically via email to Daniel Coffey - daniel.coffey@jacobs.com.

Note: A copy of these results will also be delivered to the general Jacobs Group (Australia) P/L NSW email address.

Jacobs Group (Australia) P/L NSW
Level 7, 177 Pacific Highway
North Sydney
NSW 2065



NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Daniel Coffey**

Report **1287446-W**

Project name **IW272400**

Project ID **IW272400**

Received Date **Nov 03, 2025**

Client Sample ID			QC201_251028
Sample Matrix			Water
Eurofins Sample No.			S25- No0002543
Date Sampled			Oct 28, 2025
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
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
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	0.05	mg/L	< 0.05
Naphthalene ^{N02}	0.01	mg/L	< 0.01
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
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	%	120
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001

Client Sample ID			QC201_251028
Sample Matrix			Water
Eurofins Sample No.			S25-No0002543
Date Sampled			Oct 28, 2025
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	92
p-Terphenyl-d14 (surr.)	1	%	114
Ammonia (as N)	0.01	mg/L	1.2
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	5.7
Chloride	1	mg/L	3400
Chlorophyll a	5	ug/L	< 5
Chromium (hexavalent filtered)	0.005	mg/L	< 0.005
Chromium (trivalent filtered)	0.005	mg/L	< 0.005
Conductivity (at 25 °C)	10	uS/cm	10000
Dissolved Oxygen	0.1	mg/L	4.5
Fluoride	0.1	mg/L	^{R16} < 2
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
Organic Nitrogen (as N)*	0.2	mg/L	0.4
pH (at 25 °C)	0.1	pH Units	6.9
Phosphate total (as P)	0.01	mg/L	0.07
Phosphorus reactive (as P)	0.05	mg/L	< 0.05
Sulphate (as SO4)	2	mg/L	220
Total Dissolved Solids Dried at 180 °C ± 2 °C	10	mg/L	5300
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.6
Total Nitrogen (as N)*	0.2	mg/L	1.6
Turbidity	1	NTU	77
Hardness mg equivalent CaCO3/L	1	mg/L	790
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	89
Carbonate Alkalinity (as CaCO3)	20	mg/L	< 20
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20
Total Alkalinity (as CaCO3)	20	mg/L	89
Alkali Metals			
Calcium	0.5	mg/L	93
Calcium (filtered)	0.5	mg/L	89
Magnesium	0.5	mg/L	140
Magnesium (filtered)	0.5	mg/L	140
Potassium (filtered)	0.5	mg/L	56
Sodium (filtered)	0.5	mg/L	1700
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	0.004
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001

Client Sample ID			QC201_251028
Sample Matrix			Water
Eurofins Sample No.			S25-No0002543
Date Sampled			Oct 28, 2025
Test/Reference	LOR	Unit	
Heavy Metals			
Nickel (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	0.37
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	1.5
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	1.4
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	0.69
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	0.25
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	0.04
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 (PFTeDA) ^{N15}	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	94
13C5-PFPeA (surr.)	1	%	99
13C5-PFHxA (surr.)	1	%	112
13C4-PFHpA (surr.)	1	%	100
13C8-PFOA (surr.)	1	%	119
13C5-PFNA (surr.)	1	%	94
13C6-PFDA (surr.)	1	%	102
13C2-PFUnDA (surr.)	1	%	100
13C2-PFDoDA (surr.)	1	%	104
13C2-PFTeDA (surr.)	1	%	95
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	%	96
D3-N-MeFOSA (surr.)	1	%	54
D5-N-EtFOSA (surr.)	1	%	53
D7-N-MeFOSE (surr.)	1	%	77
D9-N-EtFOSE (surr.)	1	%	79
D5-N-EtFOSAA (surr.)	1	%	82
D3-N-MeFOSAA (surr.)	1	%	88
Perfluoroalkyl sulfonic acids (PFSA)			
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

Client Sample ID			QC201_251028
Sample Matrix			Water
Eurofins Sample No.			S25- No0002543
Date Sampled			Oct 28, 2025
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonic acids (PFASs)			
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	%	112
18O2-PFHxS (surr.)	1	%	105
13C8-PFOS (surr.)	1	%	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
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	3.4
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	0.08
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	138
13C2-6:2 FTSA (surr.)	1	%	143
13C2-8:2 FTSA (surr.)	1	%	99
13C2-10:2 FTSA (surr.)	1	%	88
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	7.69
Sum of PFASs (n=30)*	0.1	ug/L	7.7

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	Sydney	Nov 04, 2025	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 03, 2025	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 04, 2025	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Nov 03, 2025	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 04, 2025	7 Days
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Nov 04, 2025	28 Days
Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P			
Ammonia (as N) - Method: LTM-INO-4450 Determination of Nitrogen Species by Discrete Analyser	Melbourne	Nov 05, 2025	28 Days
Nitrate & Nitrite (as N) - Method: LTM-INO-4450 Nitrogens by Discrete Analyser	Melbourne	Nov 05, 2025	28 Days
Nitrate (as N) - Method: LTM-INO-4450 Nitrogens by Discrete Analyser	Melbourne	Nov 05, 2025	28 Days
Nitrite (as N) - Method: LTM-INO-4450 Nitrogens by Discrete Analyser	Melbourne	Nov 05, 2025	2 Days
Phosphate total (as P) - Method: E052 Total Phosphate (as P)	Sydney	Nov 04, 2025	28 Days
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA	Melbourne	Nov 05, 2025	28 Days
Biochemical Oxygen Demand (BOD-5 Day) - Method: LTM-INO-4010 Biochemical Oxygen Demand (BOD5) in Water	Sydney	Nov 04, 2025	2 Days
Chlorophyll a - Method: LTM-INO-4340 Chlorophyll a in Waters	Melbourne	Nov 06, 2025	28 Days
Conductivity (at 25 °C) - Method: LTM-INO-4030 Conductivity	Sydney	Nov 04, 2025	28 Days
Dissolved Oxygen - Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter	Sydney	Nov 04, 2025	24 Hours
pH (at 25 °C) - Method: LTM-GEN-7090 pH in water by ISE	Sydney	Nov 04, 2025	6 Hours
Phosphorus reactive (as P) - Method: E052 Reactive phosphate (as P)	Sydney	Nov 04, 2025	28 Days
Turbidity - Method: LTM-INO-4140 Turbidity by Nephelometric Method	Sydney	Nov 05, 2025	2 Days
Eurofins Suite B11C filtered: Na/K/Ca/Mg - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Nov 04, 2025	180 Days
Eurofins Suite B11F: Cl/SO4/Alkalinity/Total F			
Chloride - Method: LTM-INO-4270 Anions by Ion Chromatography	Sydney	Nov 04, 2025	28 Days
Fluoride - Method: LTM-INO-4270 Anions by Ion Chromatography	Sydney	Nov 04, 2025	28 Days
Sulphate (as SO4) - Method: In-house method LTM-INO-4270 Sulphate by Ion Chromatograph	Sydney	Nov 04, 2025	28 Days
Alkalinity (speciated) - Method: LTM-INO-4250 Alkalinity by Electrometric Titration	Sydney	Nov 04, 2025	14 Days
Chromium (speciated, filtered Cr)			

Description	Testing Site	Extracted	Holding Time
Chromium (hexavalent filtered)	Sydney	Nov 04, 2025	28 Days
- Method: E057 Speciated Chromium			
Chromium (trivalent filtered)	Sydney	Nov 03, 2025	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Total Dissolved Solids Dried at 180 °C ± 2 °C	Sydney	Nov 04, 2025	7 Days
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Hardness Set			
Hardness mg equivalent CaCO ₃ /L	Sydney	Nov 04, 2025	28 Days
- Method: LTM-MET-3040 Hardness by Calculation			
Alkali Metals	Sydney	Nov 04, 2025	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Sydney	Nov 05, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Sydney	Nov 05, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Sydney	Nov 05, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Sydney	Nov 05, 2025	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Project Name: IW272400
Project ID: IW272400

Order No.:
Report #: 1287446
Phone: 02 9928 2100
Fax: 02 9928 2504

Received: Nov 3, 2025 2:50 PM
Due: Nov 10, 2025
Priority: 5 Day
Contact Name: Daniel Coffey

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Biochemical Oxygen Demand (BOD-5 Day)	Chlorophyll a	Conductivity (at 25 °C)	Dissolved Oxygen	pH (at 25 °C)	Phosphorus reactive (as P)	Turbidity	Hardness Set	Chromium (speciated, filtered Cr)	Eurofins Suite B7 (filtered metals)	Eurofins Suite B11F: Cl/SO4/Alkalinity/Total F	Eurofins Suite B19D: Total N, TKN, NOx, NO2, NO3, NH3, Total P	Per- and Polyfluoroalkyl Substances (PFASs)	Total Dissolved Solids Dried at 180 °C ± 2 °C	Eurofins Suite B11C filtered: Na/K/Ca/Mg
Melbourne Laboratory - NATA # 1261 Site # 1254							X									X				
Sydney Laboratory - NATA # 1261 Site # 18217						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	QC201_251028	Oct 28, 2025		Water	S25-No0002543	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1	1	1	1	1	1	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.
- Unless otherwise stated, 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.
- 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 where annotated.
- 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 sampling date; 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 seven 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	ppm: parts per million
µg/L: micrograms per litre	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	Colour: Pt-Co Units (CU)	

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 similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
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 6.0
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 only be used as a guide 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%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or 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							
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	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	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							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chloride	mg/L	< 1			1	Pass	
Chlorophyll a	ug/L	< 5			5	Pass	
Chromium (hexavalent filtered)	mg/L	< 0.005			0.005	Pass	
Conductivity (at 25 °C)	uS/cm	< 10			10	Pass	
Fluoride	mg/L	< 0.1			0.1	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	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO4)	mg/L	< 2			2	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	mg/L	< 10			10	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Turbidity	NTU	< 1			1	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							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Calcium (filtered)	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Magnesium (filtered)	mg/L	< 0.5			0.5	Pass	
Potassium (filtered)	mg/L	< 0.5			0.5	Pass	
Sodium (filtered)	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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)							
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							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	82			70-130	Pass	
TRH C10-C14	%	124			70-130	Pass	
TRH C6-C10	%	82			70-130	Pass	
TRH >C10-C16	%	120			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	97			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	96			70-130	Pass	
Xylenes - Total*	%	100			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	90			70-130	Pass	
Acenaphthylene	%	101			70-130	Pass	
Anthracene	%	115			70-130	Pass	
Benz(a)anthracene	%	94			70-130	Pass	
Benzo(a)pyrene	%	103			70-130	Pass	
Benzo(b&j)fluoranthene	%	97			70-130	Pass	
Benzo(g,h,i)perylene	%	104			70-130	Pass	
Benzo(k)fluoranthene	%	111			70-130	Pass	
Chrysene	%	112			70-130	Pass	
Dibenz(a,h)anthracene	%	88			70-130	Pass	
Fluoranthene	%	104			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	81			70-130	Pass	
Naphthalene	%	84			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	109			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	78			70-130	Pass	
Chloride	%	106			70-130	Pass	
Chromium (hexavalent filtered)	%	104			70-130	Pass	
Conductivity (at 25 °C)	%	101			70-130	Pass	
Fluoride	%	101			70-130	Pass	
Nitrate & Nitrite (as N)	%	114			70-130	Pass	
Nitrate (as N)	%	105			70-130	Pass	
Nitrite (as N)	%	94			70-130	Pass	
Phosphate total (as P)	%	107			70-130	Pass	
Phosphorus reactive (as P)	%	82			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Sulphate (as SO ₄)	%	104			70-130	Pass	
Total Dissolved Solids Dried at 180 °C ± 2 °C	%	92			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	98			70-130	Pass	
Turbidity	%	113			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO ₃)	%	96			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	97			80-120	Pass	
Calcium (filtered)	%	103			80-120	Pass	
Magnesium	%	94			80-120	Pass	
Magnesium (filtered)	%	105			80-120	Pass	
Potassium (filtered)	%	104			80-120	Pass	
Sodium (filtered)	%	105			80-120	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	100			80-120	Pass	
Cadmium (filtered)	%	106			80-120	Pass	
Chromium (filtered)	%	101			80-120	Pass	
Copper (filtered)	%	96			80-120	Pass	
Lead (filtered)	%	102			80-120	Pass	
Mercury (filtered)	%	105			80-120	Pass	
Nickel (filtered)	%	98			80-120	Pass	
Zinc (filtered)	%	97			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	119			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	124			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	136			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	121			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	122			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	131			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	118			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	126			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	132			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	139			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	122			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	129			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	113			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	111			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	118			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	120			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	117			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	130			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	116			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	110			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	115			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	97			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	123			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)			%	127			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	115			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	116			50-150	Pass	
LCS - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	146			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	139			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)			%	129			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S25-Oc0096789	NCP	%	73			70-130	Pass	
TRH C10-C14	S25-No0005346	NCP	%	126			70-130	Pass	
TRH >C10-C16	S25-No0005346	NCP	%	124			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S25-Oc0096789	NCP	%	95			70-130	Pass	
Toluene	S25-Oc0096789	NCP	%	101			70-130	Pass	
Ethylbenzene	S25-Oc0096789	NCP	%	101			70-130	Pass	
m&p-Xylenes	S25-Oc0096789	NCP	%	106			70-130	Pass	
o-Xylene	S25-Oc0096789	NCP	%	100			70-130	Pass	
Xylenes - Total*	S25-Oc0096789	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S25-No0005348	NCP	%	96			70-130	Pass	
Acenaphthylene	S25-No0005348	NCP	%	100			70-130	Pass	
Anthracene	S25-No0005348	NCP	%	106			70-130	Pass	
Benz(a)anthracene	S25-No0005348	NCP	%	91			70-130	Pass	
Benzo(a)pyrene	S25-No0005348	NCP	%	96			70-130	Pass	
Benzo(b,i)fluoranthene	S25-No0005348	NCP	%	90			70-130	Pass	
Benzo(g,h,i)perylene	S25-No0005348	NCP	%	97			70-130	Pass	
Benzo(k)fluoranthene	S25-No0005348	NCP	%	104			70-130	Pass	
Chrysene	S25-No0005348	NCP	%	104			70-130	Pass	
Dibenz(a,h)anthracene	S25-No0005348	NCP	%	78			70-130	Pass	
Fluoranthene	S25-No0005348	NCP	%	104			70-130	Pass	
Fluorene	S25-No0005348	NCP	%	101			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S25-No0005348	NCP	%	85			70-130	Pass	
Naphthalene	S25-No0005348	NCP	%	93			70-130	Pass	
Phenanthrene	S25-No0005348	NCP	%	88			70-130	Pass	
Pyrene	S25-No0005348	NCP	%	104			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M25-No0009880	NCP	%	93			70-130	Pass	
Chloride	R25-No0000760	NCP	%	112			70-130	Pass	
Chromium (hexavalent filtered)	S25-No0005112	NCP	%	94			70-130	Pass	
Fluoride	R25-No0000760	NCP	%	101			70-130	Pass	
Nitrate & Nitrite (as N)	M25-No0009880	NCP	%	84			70-130	Pass	
Nitrate (as N)	M25-No0009880	NCP	%	86			70-130	Pass	
Nitrite (as N)	M25-No0009880	NCP	%	79			70-130	Pass	
Phosphate total (as P)	S25-No0003058	NCP	%	68			70-130	Fail	Q08
Phosphorus reactive (as P)	S25-Oc0097081	NCP	%	104			70-130	Pass	
Sulphate (as SO4)	R25-No0000760	NCP	%	111			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	B25-No0004840	NCP	%	92			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S25-No0003751	NCP	%	57			75-125	Fail	Q05
Calcium (filtered)	N25-No0000747	NCP	%	93			75-125	Pass	
Magnesium	S25-No0003751	NCP	%	155.000000			75-125	Fail	Q05
Magnesium (filtered)	N25-No0000747	NCP	%	97			75-125	Pass	
Potassium (filtered)	N25-No0000747	NCP	%	97			75-125	Pass	
Sodium (filtered)	N25-No0000747	NCP	%	66			75-125	Fail	Q05
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	N25-No0000747	NCP	%	95			75-125	Pass	
Cadmium (filtered)	N25-No0000747	NCP	%	99			75-125	Pass	
Chromium (filtered)	N25-No0000747	NCP	%	94			75-125	Pass	
Copper (filtered)	N25-No0000747	NCP	%	90			75-125	Pass	
Lead (filtered)	N25-No0000747	NCP	%	92			75-125	Pass	
Mercury (filtered)	N25-No0000747	NCP	%	90			75-125	Pass	
Nickel (filtered)	N25-No0000747	NCP	%	90			75-125	Pass	
Zinc (filtered)	N25-No0000747	NCP	%	86			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S25-No0009363	NCP	%	125			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S25-No0009363	NCP	%	96			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S25-No0003196	NCP	%	122			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S25-No0009363	NCP	%	82			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S25-No0009363	NCP	%	127			50-150	Pass	
Perfluorononanoic acid (PFNA)	S25-No0009363	NCP	%	117			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S25-No0009363	NCP	%	134			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S25-No0009363	NCP	%	112			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S25-No0009363	NCP	%	144			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S25-No0009363	NCP	%	107			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S25-No0009363	NCP	%	124			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S25-No0009363	NCP	%	111			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S25-No0009363	NCP	%	128			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S25-No0009363	NCP	%	111			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S25-No0009363	NCP	%	124			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S25-No0009363	NCP	%	96			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S25-No0009363	NCP	%	112			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S25-No0009363	NCP	%	120			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S25-No0003196	NCP	%	121			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorononanesulfonic acid (PFNS)	S25-No0009363	NCP	%	107			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S25-No0009363	NCP	%	129			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S25-No0009363	NCP	%	117			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S25-No0003196	NCP	%	112			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S25-No0009363	NCP	%	131			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S25-No0009363	NCP	%	101			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S25-No0009363	NCP	%	135			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S25-No0009363	NCP	%	117			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S25-No0009363	NCP	%	117			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S25-No0009363	NCP	%	113			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S25-Oc0096345	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S25-No0005347	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S25-No0005347	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S25-No0005347	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10	S25-Oc0096345	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S25-No0005347	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Naphthalene	S25-Oc0096345	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH >C16-C34	S25-No0005347	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S25-No0005347	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S25-Oc0096345	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S25-Oc0096345	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S25-Oc0096345	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S25-Oc0096345	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S25-Oc0096345	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S25-Oc0096345	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a,h)anthracene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Fluoranthene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S25-No0005347	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	M25-No0009879	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Biochemical Oxygen Demand (BOD-5 Day)	S25-No0001739	NCP	mg/L	120	130	11	30%	Pass
Chloride	S25-No0003751	NCP	mg/L	8600	8600	<1	30%	Pass
Chlorophyll a	S25-No0002543	CP	ug/L	< 5	< 5	<1	30%	Pass
Chromium (hexavalent filtered)	S25-No0002173	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Conductivity (at 25 °C)	R25-No0000759	NCP	uS/cm	89	88	1.0	30%	Pass
Fluoride	S25-No0003751	NCP	mg/L	< 4	< 4	<1	30%	Pass
Nitrate & Nitrite (as N)	M25-No0009879	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Nitrate (as N)	M25-No0009879	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Nitrite (as N)	M25-No0009879	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Phosphate total (as P)	S25-No0003059	NCP	mg/L	0.11	0.10	6.0	30%	Pass
Phosphorus reactive (as P)	S25-Oc0095907	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Sulphate (as SO4)	S25-No0003751	NCP	mg/L	750	710	6.0	30%	Pass
Total Dissolved Solids Dried at 180 °C ± 2 °C	S25-Oc0097081	NCP	mg/L	240	190	26	30%	Pass
Total Kjeldahl Nitrogen (as N)	B25-No0002182	NCP	mg/L	17	18	11	30%	Pass
Turbidity	S25-No0005799	NCP	NTU	29	29	3.1	30%	Pass
Hardness mg equivalent CaCO3/L	S25-No0002543	CP	mg/L	790	780	2.0	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO3)	N25-No0000744	NCP	mg/L	370	380	2.0	30%	Pass
Carbonate Alkalinity (as CaCO3)	N25-No0000744	NCP	mg/L	< 20	< 20	<1	30%	Pass
Hydroxide Alkalinity (as CaCO3)	N25-No0000744	NCP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO3)	N25-No0000744	NCP	mg/L	370	380	2.0	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	S25-No0002543	CP	mg/L	93	92	2.0	30%	Pass
Calcium (filtered)	S25-No0003059	NCP	mg/L	14	14	<1	30%	Pass
Magnesium	S25-No0002543	CP	mg/L	140	130	2.0	30%	Pass
Magnesium (filtered)	S25-No0003059	NCP	mg/L	10	10	2.0	30%	Pass
Potassium (filtered)	S25-No0003059	NCP	mg/L	3.2	3.2	1.0	30%	Pass
Sodium (filtered)	S25-No0003059	NCP	mg/L	76	78	3.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S25-No0003059	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium (filtered)	S25-No0003059	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	S25-No0003059	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	S25-No0003059	NCP	mg/L	0.002	0.002	6.0	30%	Pass
Lead (filtered)	S25-No0003059	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S25-No0003059	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S25-No0003059	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc (filtered)	S25-No0003059	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S25-No0001742	NCP	ug/L	< 2.5	3.7	5.0	30%	Pass
Perfluoropentanoic acid (PFPeA)	S25-No0001742	NCP	ug/L	0.59	< 0.5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S25-No0001742	NCP	ug/L	0.75	0.93	24	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S25-No0001742	NCP	ug/L	< 2.5	< 2.5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S25-No0001742	NCP	ug/L	1.7	1.5	2.0	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S25-No0001742	NCP	ug/L	0.78	0.71	10	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<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)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S25-No0001742	NCP	ug/L	< 15	< 15	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S25-No0001742	NCP	ug/L	< 0.5	< 0.5	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	No
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
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.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
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
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.
R16	The LORs have been raised due to the high concentration of one or more analytes

Authorised by:

Andrew Black	Analytical Services Manager
Dilani Samarakoon	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Inorganic
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-PFAS
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	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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Quality Assurance/Quality Control Review

Summary :

Quality Control Frequency - Water

- 0 Duplicate frequency non-compliant
- 0 Laboratory matrix spike frequency non-compliant
- 0 Method Blank frequency non-compliant
- 0 Laboratory Control Spikes frequency non-compliant

Quality Control Outlier - Water

- 0 Duplicate outlier
- 2 Laboratory matrix spike outlier
- 0 Method Blank outlier
- 0 Laboratory Control Spikes outlier

Holding Time Outlier - Water

- Biochemical Oxygen Demand (BOD-5 Day) analysed out of holding time
- Dissolved Oxygen analysed out of holding time
- Nitrite (as N) analysed out of holding time
- pH (at 25 °C) analysed out of holding time
- Turbidity analysed out of holding time

Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'. It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch. Method blank - One method blank per process batch. Laboratory duplicate: There should be at least one duplicate per process batch or two duplicates if the process batch exceeds 10 samples. Laboratory control sample (LCS): There should be at least one LCS per process batch. Matrix spikes - There should be one matrix spike per matrix type per process batch.

For Per- and Polyfluoroalkyl Substances (PFAS) analysis, as outlined in US EPA Quality Systems Manual (QSM 6.0 or later versions) Table B-24. Per- and Polyfluoroalkyl Substances (PFAS) Analysis by Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS), follow strict Data Validation procedures to ensure accuracy, precision, and reliability as per US DoD's Environmental Data Quality Workgroup Data Validation Guidelines Module 6. Acceptance criteria and frequency for Initial Calibration Verification (ICV), Continuing Calibration Verification (CCV), Laboratory Control Sample (LCS), Method Blank (MB), Surrogate Recovery (for Isotopically Labelled Standards for Extracted Internal Standards and Non-extracted Internal Standards (if applicable for Method 1633)) and duplicates follow the NEPM requirements or additional prerequisites listed in PFAS National Environmental Management Plan 3.0, 2025.

Matrix : Water

Analysis	QC Type	Samples Analysed	QC Sample Reported	Frequency Criteria		Within Acceptance Limits
				Expected	Achieved	
Total Recoverable Hydrocarbons	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
BTEX	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Polycyclic Aromatic Hydrocarbons	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Ammonia (as N)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Biochemical Oxygen Demand (BOD-5 Day)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	N/A	-	-	-
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	N/A	-	-	-
Chloride	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Chlorophyll a	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	N/A	-	-	-
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	N/A	-	-	-
Chromium (hexavalent filtered)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓

Matrix : Water

Conductivity (at 25 °C)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	N/A	-	-	-
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Fluoride	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Nitrate & Nitrite (as N)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Nitrate (as N)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Nitrite (as N)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Phosphate total (as P)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✗ ^{Q08}
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Phosphorus reactive (as P)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Sulphate (as SO4)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Total Dissolved Solids Dried at 180 °C ± 2 °C	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	N/A	-	-	-
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Total Kjeldahl Nitrogen (as N)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Turbidity	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	N/A	-	-	-
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Alkalinity (speciated)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	N/A	-	-	-
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Alkali Metals	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✗ ^{Q05}
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓

Matrix : Water

Heavy Metals	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Perfluoroalkyl carboxylic acids (PFCAs)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Perfluoroalkyl sulfonamido substances	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
Perfluoroalkyl sulfonic acids (PFSAs)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)	Laboratory Duplicates	1	1	1	✓	✓
	Laboratory Matrix Spikes	1	1	1	✓	✓
	Method Blanks	1	1	1	✓	✓
	Laboratory Control Samples	1	1	1	✓	✓

Qualifier Codes/Comments

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.

Analysis Holding Time Compliance
Matrix : Water

	Analysis Holding	Date Sampled	Date Extracted	Date Analysed	Compliant
TRH C6-C9					
25-No0002543	14 Days	28/10/2025	03/11/2025	07/11/2025	✓
BTEX					
25-No0002543	14 Days	28/10/2025	03/11/2025	07/11/2025	✓
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
25-No0002543	7 Days	28/10/2025	03/11/2025	03/11/2025	✓
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
25-No0002543	7 Days	28/10/2025	03/11/2025	07/11/2025	✓
Polycyclic Aromatic Hydrocarbons					
25-No0002543	7 Days	28/10/2025	03/11/2025	07/11/2025	✓
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
25-No0002543	7 Days	28/10/2025	04/11/2025	07/11/2025	✓
Ammonia (as N)					
25-No0002543	28 Days	28/10/2025	05/11/2025	06/11/2025	✓
Biochemical Oxygen Demand (BOD-5 Day)					
25-No0002543	2 Days	28/10/2025	04/11/2025	06/11/2025	✗
Chloride					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Chlorophyll a					
25-No0002543	28 Days	28/10/2025	05/11/2025	06/11/2025	✓
Chromium (hexavalent filtered)					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Chromium (trivalent filtered)					
25-No0002543	28 Days	28/10/2025	03/11/2025	03/11/2025	✓
Conductivity (at 25 °C)					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Dissolved Oxygen					
25-No0002543	24 Hours	28/10/2025	04/11/2025	05/11/2025	✗
Fluoride					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Nitrate & Nitrite (as N)					
25-No0002543	28 Days	28/10/2025	05/11/2025	06/11/2025	✓
Nitrate (as N)					
25-No0002543	28 Days	28/10/2025	05/11/2025	06/11/2025	✓
Nitrite (as N)					
25-No0002543	2 Days	28/10/2025	05/11/2025	06/11/2025	✗
pH (at 25 °C)					
25-No0002543	6 Hours	28/10/2025	04/11/2025	05/11/2025	✗
Phosphate total (as P)					
25-No0002543	28 Days	28/10/2025	04/11/2025	06/11/2025	✓
Phosphorus reactive (as P)					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Sulphate (as SO4)					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Total Dissolved Solids Dried at 180 °C ± 2 °C					
25-No0002543	7 Days	28/10/2025	04/11/2025	06/11/2025	✓
Total Kjeldahl Nitrogen (as N)					
25-No0002543	28 Days	28/10/2025	05/11/2025	06/11/2025	✓
Turbidity					
25-No0002543	2 Days	28/10/2025	04/11/2025	05/11/2025	✗
Alkalinity (speciated)					
25-No0002543	14 Days	28/10/2025	04/11/2025	05/11/2025	✓

	Analysis Holding	Date Sampled	Date Extracted	Date Analysed	Compliant
Hardness mg equivalent CaCO3/L					
25-No0002543	28 Days	28/10/2025	04/11/2025	05/11/2025	✓
Calcium					
25-No0002543	180 Days	28/10/2025	04/11/2025	05/11/2025	✓
Magnesium					
25-No0002543	180 Days	28/10/2025	04/11/2025	05/11/2025	✓
Metals M8 filtered					
25-No0002543	28 Days	28/10/2025	04/11/2025	04/11/2025	✓
Eurofins Suite B11C filtered: Na/K/Ca/Mg					
25-No0002543	180 Days	28/10/2025	04/11/2025	04/11/2025	✓
Perfluoroalkyl carboxylic acids (PFCAs)					
25-No0002543	28 Days	28/10/2025	03/11/2025	05/11/2025	✓
Perfluoroalkyl sulfonamido substances					
25-No0002543	28 Days	28/10/2025	03/11/2025	05/11/2025	✓
Perfluoroalkyl sulfonic acids (PFSA's)					
25-No0002543	28 Days	28/10/2025	03/11/2025	05/11/2025	✓
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
25-No0002543	28 Days	28/10/2025	03/11/2025	05/11/2025	✓

Appendix E. Field Data

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	MW05	
Arrival Date/Time	03 Dec 2024 07:13AM	
Executed By	Daniel Coffey	
Comments		

Groundwater Data

Well	-	Date/Time	29 Oct 2025 01:16PM
Measurement Method	Dip	Dry	No
Gauged SWL (mbTOC)	4.535	Well Depth (mbTOC)	7.79
NAPL Depth (mbTOC)			
Comments			
Interface Probe ID			
WL Start (mbTOC)			
WL Finish (mbTOC)			
Purged Volume (L)			

Sample Data

Sampled Date/Time	29 Oct 2025 01:19PM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	MW05_251029
Pump Depth (mbTOC)	5.5
Sample Comments	
Sampling Method	

Field Chemistry

	Standing Water Level (SWL)	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)	Purge Volume
Time	m	mg/L	µS/cm	pH Units	mV	°C	L
01:32PM	4.665	0.97	23478	3.15	280.7	33.2	0
01:37PM	4.778	0.95	23611	3.2	284.9	33.1	1.5
01:42PM	4.82	1.14	236649	3.18	311.6	33.2	2
01:47PM	4.925	1.45	23553	3.15	340.6	33.1	3
01:52PM	4.985	1.45	23607	3.13	353.6	33.2	4
01:57PM	5.051	1.41	23570	3.1	376	33.1	4.5
02:02PM	5.12	1.24	23593	3.08	390.4	33.2	
02:05PM	5.16	1.2	23642	3.08	395.2	33.2	5.5
02:08PM	5.12	1.2	23715	3.08	393.2	33.4	6
Stabilisation *		±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)		

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	MW04	
Arrival Date/Time	02 Dec 2024 08:48AM	
Executed By	Daniel Coffey	
Comments		

Groundwater Data

Well	MW04	Date/Time	28 Oct 2025 12:37PM
Measurement Method	Dip	Dry	No
Gauged SWL (mbTOC)	3.062	Well Depth (mbTOC)	7.025
NAPL Depth (mbTOC)			
Comments			
Interface Probe ID			
WL Start (mbTOC)			
WL Finish (mbTOC)			
Purged Volume (L)			

Sample Data

Sampled Date/Time	28 Oct 2025 12:39PM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	MW04_251028
Pump Depth (mbTOC)	5
Sample Comments	
Sampling Method	

Field Chemistry

	Standing Water Level (SWL)	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)	Purge Volume
Time	m	mg/L	µS/cm	pH Units	mV	°C	L
12:48PM	3.123	0.76	1885	4.22	195.2	33.6	0.5
12:52PM	3.224	0.8	1872	5.14	176.5	33.4	1
12:57PM	3.28	0.62	1874	5.16	194	33.6	2.5
01:02PM	3.301	0.88	1888	5.2	206.7	33.8	3
01:07PM	3.315	0.87	1890	5.18	217.6	33.7	4
01:11PM	3.33	0.85	1897	5.18	224.3	33.8	5
01:15PM	3.335	0.92	1906	5.18	227.6	33.8	5.5
Stabilisation *		±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)		

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	MW03	
Arrival Date/Time	03 Dec 2024 10:13AM	
Executed By	Daniel Coffey	
Comments		

Groundwater Data

Well	MW03	Date/Time	28 Oct 2025 02:44PM
Measurement Method	Dip	Dry	No
Gauged SWL (mbTOC)	3.217	Well Depth (mbTOC)	8.314
NAPL Depth (mbTOC)			
Comments			
Interface Probe ID			
WL Start (mbTOC)			
WL Finish (mbTOC)			
Purged Volume (L)			

Sample Data

Sampled Date/Time	28 Oct 2025 02:46PM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	MW03_251028
Pump Depth (mbTOC)	6
Sample Comments	
Sampling Method	

Field Chemistry

	Standing Water Level (SWL)	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)	Purge Volume
Time	m	mg/L	µS/cm	pH Units	mV	°C	L
02:53PM	3.286	1.01	1120	4.75	235	32.9	0
02:58PM	3.369	1.05	1121	4.69	225.1	32.5	1
03:03PM	3.474	1.01	1124	4.57	223.8	32.3	2
03:08PM	3.56	1.12	1122	4.48	224.3	32.1	3
03:13PM	3.637	1.08	1136	4.37	226.8	32.1	3.5
03:17PM	3.68	1.03	1146	6.22	112.3	32.2	4
03:22PM	3.726	1.08	1147	5.9	128.4	32.1	5
03:26PM	3.756	1.01	1142	5.69	138.8	31.9	6
03:30PM	3.775	0.99	1144	5.54	145.6	32	7
03:35PM	3.804	0.91	1141	5.36	154.7	31.9	8
03:40PM	3.84	0.9	1141	5.2	162.7	31.9	9
03:45PM	3.864	0.84	1141	5.08	164.4	32	9.5
Stabilisation *		±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)		

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	MW02	
Arrival Date/Time	03 Dec 2024 11:52AM	
Executed By	Daniel Coffey	
Comments		

Groundwater Data

Well	MW02	Date/Time	29 Oct 2025 09:20AM
Measurement Method	Dip	Dry	No
Gauged SWL (mbTOC)	2.34	Well Depth (mbTOC)	4.6
NAPL Depth (mbTOC)			
Comments			
Interface Probe ID			
WL Start (mbTOC)			
WL Finish (mbTOC)			
Purged Volume (L)			

Sample Data

Sampled Date/Time	29 Oct 2025 09:25AM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	MW02_251029
Pump Depth (mbTOC)	3.5
Sample Comments	
Sampling Method	

Field Chemistry

	Standing Water Level (SWL)	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)
Time	m	mg/L	µS/cm	pH Units	mV	°C
10:08AM	2.335	0.08	15400	6.5	-109.9	31.3
10:12AM	2.338	0.15	16269	6.21	-117.1	31.3
10:16AM	2.339	0.35	16575	6.51	-145.6	31.3
10:20AM	2.4	0.43	16774	6.38	-144.3	31.3
10:24AM	2.405	0.45	16990	6.22	-139.3	31.3
10:30AM	2.405	0.46	17147	6.11	-138	31.3
Stabilisation *		±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone			
Location Code	MW01				
Arrival Date/Time	26 Nov 2024 01:08PM				
Executed By	Daniel Coffey				
Comments					
Well	MW01	Date/Time	28 Oct 2025 10:34AM		
Measurement Method	Dip	Dry	No		
Gauged SWL (mbTOC)	2.765	Well Depth (mbTOC)	6.76		
NAPL Depth (mbTOC)					
Comments					
Interface Probe ID	18J104308				
WL Start (mbTOC)	2.765				
WL Finish (mbTOC)					
Purged Volume (L)					

Sample Data

Sampled Date/Time	28 Oct 2025 10:33AM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	MW01_251028
Pump Depth (mbTOC)	4
Sample Comments	QC101 QC201
Sampling Method	

Field Chemistry

	Standing Water Level (SWL)	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)	Purge Volume
Time	m	mg/L	µS/cm	pH Units	mV	°C	L
10:45AM	2.775	0.08	9873	6.25	-59.5	32.7	0.5
10:53AM	2.784	0.07	10100	6.27	-86.3	32.7	2
10:57AM	2.786	0.09	10144	6.27	-108.3	32.5	3
11:01AM	2.794	0.12	10247	6.27	-120.5	32.6	4.5
11:05AM	2.797	0.14	10307	6.28	-126.3	32.6	5.5
11:09AM	2.798	0.15	10381	6.28	-131.6	32.6	6
11:13AM	2.799	0.16	10417	6.26	-135.9	32.7	7
11:18AM	2.802	0.16	10413	6.26	-137.9	32.5	8
Stabilisation *		±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)		

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	MW06	
Arrival Date/Time	02 Dec 2024 01:54PM	
Executed By	Daniel Coffey	
Comments		

Groundwater Data

Well	MW06	Date/Time	29 Oct 2025 11:09AM
Measurement Method	Dip	Dry	No
Gauged SWL (mbTOC)	1.76	Well Depth (mbTOC)	5.455
NAPL Depth (mbTOC)			
Comments			
Interface Probe ID			
WL Start (mbTOC)			
WL Finish (mbTOC)			
Purged Volume (L)			

Sample Data

Sampled Date/Time	29 Oct 2025 11:13AM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	MW06_251029
Pump Depth (mbTOC)	3.5
Sample Comments	
Sampling Method	

Field Chemistry

	Standing Water Level (SWL)	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)	Purge Volume
Time	m	mg/L	µS/cm	pH Units	mV	°C	L
11:19AM	1.67	0.43	2118	4.37	199.4	32.4	0
11:24AM	1.655	0.22	2034	4.24	261.4	32.7	1
11:29AM	1.62	0.3	2028	3.99	289.3	32.9	2
11:33AM	1.6	0.37	1972	3.87	305.3	33.1	3
11:38AM	1.58	0.88	1686	3.85	310.2	33.3	3.5
11:42AM	1.58	1.17	1424	4.35	28.4	33.4	4
11:46AM	1.58	1.46	1206	4.23	286.9	33.4	5
11:51AM	1.55	1.59	1087	4.08	295.1	33.4	6
11:55AM	1.55	1.63	1034	3.94	302.3	33.5	6.5
11:59AM	1.55	1.64	1013	3.84	307.3	33.5	7
12:04PM	1.55	1.95	990	3.82	307.9	33.7	8
12:08PM	1.55	1.81	972	3.77	309.7	33.6	9
12:12PM	1.55	1.91	973	3.72	312	33.7	9.5
Stabilisation *		±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)		

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	SW08	
Arrival Date/Time	29 Oct 2025 12:57PM	
Executed By	Daniel Coffey	
Comments		

Sample Data

Sampled Date/Time	29 Oct 2025 12:58PM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	SW08_251029
Pump Depth (mbTOC)	
Sample Comments	
Sampling Method	

Field Chemistry

	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)
Time	mg/L	µS/cm	pH Units	mV	°C
12:57PM	2.57	432.6	6.43	218.5	30.6
Stabilisation *	±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	SW01	
Arrival Date/Time	29 Oct 2025 03:13PM	
Executed By	Daniel Coffey	
Comments		

Sample Data

Sampled Date/Time	29 Oct 2025 03:14PM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	SW01_251029
Pump Depth (mbTOC)	
Sample Comments	
Sampling Method	

Field Chemistry

	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)
Time	mg/L	µS/cm	pH Units	mV	°C
03:13PM	2.92	360	6.67	213.2	34.6
Stabilisation *	±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	SW04	
Arrival Date/Time	29 Oct 2025 03:51PM	
Executed By	Daniel Coffey	
Comments		

Sample Data

Sampled Date/Time	29 Oct 2025 03:51PM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	SW04_251029
Pump Depth (mbTOC)	
Sample Comments	
Sampling Method	

Field Chemistry

	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)
Time	mg/L	µS/cm	pH Units	mV	°C
03:51PM	4.66	335	8.77	132.3	32.1
Stabilisation *	±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	SW06	
Arrival Date/Time	03 Nov 2025 06:21AM	
Executed By	Daniel Coffey	
Comments		

Sample Data

Sampled Date/Time	03 Nov 2025 07:21AM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	SW06_251103
Pump Depth (mbTOC)	
Sample Comments	
Sampling Method	

Field Chemistry

	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)
Time	mg/L	µS/cm	pH Units	mV	°C
09:21AM	2.18	757	6.83	127.8	29.2
Stabilisation *	±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Location Visit

Site ID	IW272400	Monitoring Zone
Location Code	SW05	
Arrival Date/Time	03 Nov 2025 09:31AM	
Executed By	Daniel Coffey	
Comments		

Sample Data

Sampled Date/Time	10 Nov 2025 09:31AM
Sampled By	Daniel Coffey
Matrix Type	Water
WQM ID	18J104308
Field ID	SW05_251103
Pump Depth (mbTOC)	
Sample Comments	
Sampling Method	

Field Chemistry

	DO (Field)	EC (Field)	pH (Field)	Redox (Field)	Temp (Field)
Time	mg/L	µS/cm	pH Units	mV	°C
09:31AM	0	548	6.62	-252.2	29
Stabilisation *	±10% (3)	±3% (3)	±0.5pH units (3)	±10mV (3)	

Green indicates readings have stabilised according to the criteria shown, red indicates they haven't. The number in brackets indicates the number of readings that need to meet the criteria for the readings to be considered stable.

Appendix F. Historical Analytical Results

Date Sampled / Analyte	pH	EC	TSS	Turbidity	DO	Temp	Ammonia as N	Reactive Phosphorous	Chlorophyll-a	BOD	TRH	Total Nitrogen	Phosphorous Total	E.coli	Enterococci
		µS/cm	mg/L	NTU	DO% saturation	°C	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L	MNP/100ml	MNP/100ml
Water Quality Objective	7.0-8.5	NA	30	4	80-100	NA	0.02	0.01	4	NA	10000	0.3	0.03	200	50
LOR	0.01	1					0.01	0.01			100	0.1	0.01		
MW01															
26/11/2024	6.51	19,100					2.76	<0.01			<100	3.3	0.04		
24/03/2025	6.8	9,430	13	32.7			1.21	<0.01	3	<2	<100	1.5	0.02		
22/07/2025	6.69	9,640	18	22.4			1.36	<0.01	<1	<2	<100	2.03333333	0.02	48	<1
28/10/2025	6.2	9770		62.1			1.15	<0.01	<1		<100	1.3	<0.01	<1	11
MW02															
3/12/2024	6.9	15,100					10.9	<0.01			<100	12	0.06		
24/03/2025	6.43	9,240	127	465			0.62	<0.01	<1	16	<100	2.5	0.07		
21/07/2025	6.94	16,200	470	325			10.6	<0.01	<2	6	<100	9.16666667	0.07	<1	<1
28/10/2025	6.82	16700		590			13	<0.01	<1		<100	13	0.08	<1	<1
MW03															
3/12/2024	6.95	13,600					0.37	0.05			<100	0.6	0.09		
24/03/2025	6.75	531	21	15			0.12	<0.01	<1	2	<100	0.5	0.075		
21/07/2025	6.93	2,380	14	46.4			0.45	<0.01	<1	<2	<100	1.03333333	0.075	1	<1
28/10/2025	6.69	955		10.3			0.03	0.02	<1		<100	2	0.06	6	54
MW04															
2/12/2024	6.07	1,760					0.14	0.01			<100	2.4	0.11		
24/03/2025	5.89	2,220	106	41.5			<0.01	0.01	<1	<2	<100	2.3	0.085		
21/07/2025	6.16	1,740	92	21.9			0.08	0.06	<1	<2	<100	2.13333333	0.085	<1	<1
28/10/2025	5.6	1680		48.3			<0.01	0.04	<1		<100	1.7	0.06	<1	<1
MW05															
2/12/2024	3.65	21,100					0.22	<0.01			<100	0.4	0.1		
24/03/2025	3.62	17,300	34	17			0.56	0.01	<1	<2	<100	5.6	0.075		
22/07/2025	3.51	21,100	22	18.8			0.13	0.17	<1	<2	<100	2.1	0.075	<1	<1
28/10/2025	3.42	22400		9.5			0.16	0.03	<1		<100	0.3	0.05	<1	<1
MW06															
2/12/2024	5.49	668					<0.01	<0.01			<100	2	<0.1		
24/03/2025	6.3	698	<5	2.1			<0.01	<0.01	<1	<2	<100	1.7	0.01		
22/07/2025	6.44	30,300	805	440			0.59	<0.01	<1	<2	<100	1.56666667	0.01	<1	<1
28/10/2025	5.26	767		12.8			0.04	<0.01	<1		<100	1	0.01	1600	640

Exceeds Water Quality Objective
Average of other results from location

Date Sampled / Analyte	As	Cd	Cr (III)	Cr (IV)	Cu	Fe	Pb	Mn	Hg	Ni	Ag	Zn	Benzene	Ethyl Benzene	Toulene	m-Xylene	o-Xylene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Water Quality Objective	NA	0.7	27	4.4	1.3	NA	4.4	NA	0.4	70	1.4	8	700	80	18	75	350
LOR		0.1			1		1		0.1			5	1	2	2		2
MW01																	
26/11/2024	15	<0.1	<10		10		<1		<0.1	<1		6	<1	<2	<2		<2
24/03/2025	16	<0.1		<10	<1	12,100	<1	1,990	<0.1	<1	<1	<5	<1	<2	<2		<2
22/07/2025	15	0.1		<1,000	<1	7,390	<1	1,150	<0.1	<1	<1	<5	<1	<2	<2		<2
28/10/2025	13	<0.1		<10	<1		<1			<1		<5	<1	<2	<2		<2
MW02																	
3/12/2024	10	<0.1			<1		<1		<0.1	2		<5	<1	<2	<2		<2
24/03/2025	3	<0.1	<10	<10	<1	109,000	<1	5,980	<0.1	<1	<1	5	<1	<2	<2		<2
21/07/2025	4	<0.1	<10	<10	<1	47,900	<1	2,880	<0.1	<1	<1	<5	<1	<2	<2		<2
28/10/2025	4	<0.1	<10	<10	<1		<1			<1		<5	<1	<2	<2		<2
MW03																	
3/12/2024	14	<0.1			<1		<1		<0.1	11		<5	<1	<2	<2		<2
24/03/2025	4	<0.1	<10	<10	<1	4,590	<1	578	<0.1	<1	<1	9	<1	<2	<2		<2
21/07/2025	10	<0.1	<10	<10	25	4,620	1	1,310	<0.1	8	<1	<5	<1	<2	<2		<2
28/10/2025	2	<0.1	<10	<10	27		<1			3		6	<1	<2	<2		<2
MW04																	
2/12/2024	3	<0.1			<1		<1		<0.1	6		8	<1	<2	<2		<2
24/03/2025	3	0.1	<10	<10	100	<50	<1	676	<0.1	12	<1	15	<1	<2	<2		<2
21/07/2025	4	<0.1	<10	<10	1,050	140	<1	856	<0.1	9	<1	7	<1	<2	<2		<2
28/10/2025	3	<0.1	<10	<10	290		<1			7		7	<1	<2	<2		<2
MW05																	
2/12/2024	128	1.4			50		60		<0.1	140		240	<1	<2	<2		<2
24/03/2025	42	2.1	<10	<10	43	3,360	35	676	<0.1	611	2	659	<1	<2	<2		<2
22/07/2025	190	1.4	10	<10	1,810	28,200	83	856	<0.1	130	5	135	<1	<2	<2		<2
28/10/2025	226	1.4	10	<10	1470		109			99		98	<1	<2	<2		<2
MW06																	
2/12/2024	<1	<1			<1		<1		<0.1	<1		6	<1	<2	<2		<2
24/03/2025	<1	<0.1	<10	<10	<1	<50	<1	621	<0.1	<1	<1	5	<1	<2	<2		<2
22/07/2025	9	<0.1	<10	<10	<1	14,600	<1	2,230	<0.1	3	<1	7	<1	<2	<2		<2
28/10/2025	<1	<0.1	<10	<10	2		<1			2		15	<1	<2	<2		<2

Date Sampled / Analyte	p-Xylene	Anthracene	Benzo(a) pyrene	Fluoranthene	Naphthalene	Phenanthrene	TPH C10-C14	TPH C15-C28	TPH C29-C3	TPHC6-C9	PFOS	PFOA
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Water Quality Objective	200	0.01	0.1	1	50	0.6	600	600	600	600	0.13	220
LOR		1	1	1	1		50	50	50	50		
MW01												
26/11/2024		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.1	0.52
24/03/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.22
22/07/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.23
28/10/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.29
MW02												
3/12/2024		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.1	0.02
24/03/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.03
21/07/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.02
28/10/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.02
MW03												
3/12/2024		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.1	<0.1
24/03/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
21/07/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
28/10/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
MW04												
2/12/2024		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.1	<0.1
24/03/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
21/07/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
28/10/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
MW05												
2/12/2024		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.1	<0.1
24/03/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
22/07/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
28/10/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
MW06												
2/12/2024		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.1	0.01
24/03/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
22/07/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	<0.01
28/10/2025		<1	<1	<1	<1	<1	<50	<50	<50	<50	<0.01	0.02

Date Sampled / Analyte	pH	EC	TSS	Turbidity	DO	Temp	Ammonia as N	Reactive Phosphorous	Chlorophyll-a	BOD	TRH	Total Nitrogen	Phosphorous Total	E.coli	Enterococci	As	Cd	Cr (III)	Cr (IV)	Cu
		µS/cm	mg/L	NTU	DO% saturation	°C	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L	MNP/100ml	MNP/100ml	µg/L	µg/L	µg/L	µg/L	µg/L
Water Quality Objective	7.0-8.5	NA	30	4	80-100	NA	0.02	0.01	4	NA	10000	0.3	0.03	200	50	NA	0.7	27	4.4	1.3
LOR	0.01	1					0.01	0.01			100	0.1	0.01				0.1			1
SW01																				
3/12/2024	6.71	103	5				<0.01	0.02	-	-	<100	0.1	0.02			-	-	-	-	-
9/01/2025		-	-						-	-	-					<1	<0.1	-	-	<1
25/03/2025	7.12	101	7	7.3			0.02	<0.01	<1	3	<100	0.2	<0.01			<1	<0.1	<10	<10	<1
28/10/2025	6.08	279		35.6			<0.01	<0.01	<1		<100	0.6	0.02	570	1500	<1	<0.1	<10	<10	3
SW02																				
20/11/2024	6.92	681	27				0.02	0.05	-	-	<100	0.9	0.05			-	-	-	-	-
9/01/2025		-	-						-	-	-					1	<0.1	-	-	3
25/03/2025	7.24	617	37	65			0.01	0.04	<1	6	<100	0.6	0.04			1	<0.1	<10	<10	<1
SW03																				
25/03/2025	7.17	166	<5	8.4			0.14	0.06	2	5	<100	1.1	0.06			2	<0.1	<10	<10	<1
SW04																				
20/11/2024	8.63	164	17				0.04	0.03	-	-	<100	0.2	0.03			-	-	-	-	-
9/01/2025		-	-						-	-	-					1	<0.1	-	-	1
25/03/2025	7.52	121	<5	11.2			0.02	0.02	<1	4	<100	0.1	0.02			<1	<0.1	<10	<10	<1
28/10/2025	6.22	232		22.5			0.02	<0.01	4		<100	1	0.03	2	29	<1	<0.1	<10	<10	4
SW05																				
20/11/2024	6.93	236	14				0.08	0.22	-	-	<100	0.8	0.22			-	-	-	-	-
9/01/2025		-	-						-	-	-					1	<0.1	-	-	4
25/03/2025	7.22	144	<5	7.6			0.04	0.03	<1	4	<100	0.3	0.03			<1	<0.1	<10	<10	<1
3/11/2025	7.04	494		8.2			0.08	<0.01	1		210	1.3	0.33	220	1800	2	<0.1	<10	<10	<1
SW06																				
20/11/2024	6.95	739	10				0.22	0.05	-	-	<100	0.6	0.05			-	-	-	-	-
9/01/2025		-	-				-		-	-	-					<1	<0.1	-	-	<1
25/03/2025	7.23	503	<5	8.4			0.03	0.02	<1	5	<100	0.3	0.02			<1	<0.1	<10	<10	<1
SW07																				
3/12/2024	6.44	219	12	6.44			<0.01	0.06	-	-	<100	0.7	0.06			-	-	-	-	-
9/01/2025		-	-						-	-	-					5	<0.1	-	-	<1
25/03/2025	7.03	158	24	7.03			0.01	0.14	20	12	<100	1.6	0.14			2	<0.1	<10	<10	<1
3/11/2025	7.31	710		8.8			0.03	<0.01	12		<100	0.6	0.06	150	5	4	<0.1	<10	<10	<1
SW08																				
28/10/2025	6	338		37.2			0.01	<0.01	<1		<100	0.8	0.03	6100	5500	<1	<0.1	<10	<10	3

Exceeds Water Quality Objective

Date Sampled / Analyte	Fe	Pb	Mn	Hg	Ni	Ag	Zn	Benzene	Ethyl Benzene	Toulene	m-Xylene	o-Xylene	p-Xylene	Anthracene	Benzo(a) pyrene	Fluoranthene	Naphthalene	Phenanthrene	TPH C10-C14
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Water Quality Objective	NA	4.4	NA	0.4	70	1.4	8	700	80	18	75	350	200	0.01	0.1	1	50	0.6	600
LOR		1		0.1			5	1	2	2	2	2	2	1	1	1	1		50
SW01																			
3/12/2024	-	-	-	-	-	-		<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
9/01/2025	-	<1	-	<0.1	<1	-	64	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<50	<1	2	<0.1	<1	<1	87	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
28/10/2025		<1			<1		57	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW02																			
20/11/2024	-	-	-	-	-	-		<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
9/01/2025	-	<1	-	<0.1	<1	-	9	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<50	<1	8	<0.1	<1	<1	8	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW03																			
25/03/2025	660	<1	53	<0.1		<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW04																			
20/11/2024	-	-	-	-	-	-		<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
9/01/2025	-	<1	-	<0.1	<1	-	<5	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<50	<1	13	<0.1	<1	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
28/10/2025		<1			<1		20	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW05																			
20/11/2024	-	-	-	-	-	-		<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
9/01/2025	-	<1	-	<0.1	3	-	64	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	310	<1	55	<0.1	<1	<1	18	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
3/11/2025		<1			2		9	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW06																			
20/11/2024	-	-	-	-	-	-		<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
9/01/2025	-	<1	-	<0.1	1	-	22	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<50	<1	300	<0.1	<1	<1	12	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW07																			
3/12/2024	-	-	-	-	-	-		<1	<2	7	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
9/01/2025	-	<1	-	<0.1	<1	-	5	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	2,550	<1	47	<0.1	<1	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
3/11/2025		<1			2		17	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20
SW08																			
28/10/2025		<1			<1		69	<1	<2	<2	<2	<2	<2	<1.0	<0.5	<1.0	<1.0	<1.0	<20



Date Sampled / Analyte	TPH C15-C28	TPH C29-C3	TPHC6-C9	PFOS	PFOA
	µg/L	µg/L	µg/L	µg/L	µg/L
Water Quality Objective	600	600	600	0.13	220
LOR	50	50	50		
SW01					
3/12/2024	<50	<100	<50	<0.01	<0.01
9/01/2025	-	-	-	-	-
25/03/2025	<50	<100	<50	<0.01	<0.01
28/10/2025	<50	<100	<50	<0.01	<0.01
SW02					
20/11/2024	<50	<100	<50	<0.01	<0.01
9/01/2025	-	-	-	-	-
25/03/2025	<50	<100	<50	<0.01	0.14
SW03					
25/03/2025	<50	<100	<50	<0.01	<0.01
SW04					
20/11/2024	<50	<100	<50	<0.01	<0.01
9/01/2025	-	-	-	-	-
25/03/2025	<50	<100	<50	<0.01	<0.01
28/10/2025	<50	<100	<50	<0.01	<0.01
SW05					
20/11/2024	<50	<100	<50	<0.01	0.02
9/01/2025	-	-	-	-	-
25/03/2025	<50	<100	<50	<0.01	<0.01
3/11/2025	220	<100	<50	<0.01	0.01
SW06					
20/11/2024	<50	<100	<50	<0.01	<0.01
9/01/2025	-	-	-	-	-
25/03/2025	<50	<100	<50	<0.01	<0.01
SW07					
3/12/2024	<50	<100	<50	<0.01	<0.01
9/01/2025	-	-	-	-	-
25/03/2025	<50	<100	<50	<0.01	<0.01
3/11/2025	<50	<100	<50	<0.01	0.02
SW08					
28/10/2025	<50	<100	<50	<0.01	<0.01

DATE SAMPLED / ANALYTE	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexadecanoic acid (PFHxDA)	Perfluorododecanolc acid (PFDDoDA)	Perfluorodecanoic acid (PFDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorotetradecanoic acid (PFTeDA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger Value	0.13	220																
LOR	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.05
Groundwater																		
MW01																		
26/11/2024	<0.01	0.52	<0.02	<0.02	1.92	<0.02	<0.02	0.06	1.69	<0.01	0.89	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
24/03/2025	<0.01	0.22		-	0.85		-	-	0.8	<0.01	0.38	-	-	-	-	<0.02	-	-
22/07/2025	<0.01	0.23	<0.02	<0.02	0.69	<0.02	<0.02	0.04	0.72	<0.01	0.28	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/10/2025	<0.01	0.29	<0.02	<0.02	1.63	<0.02	<0.02	0.04	1.41	<0.01	0.72	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
MW02																		
3/12/2024	<0.01	0.02	<0.02	<0.02	0.35	<0.02	<0.02	<0.02	0.28	<0.01	0.08	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
24/03/2025	<0.01	0.03		-	0.3		-	-	0.2	<0.01	0.1	-	-	-	-	<0.02	-	-
21/07/2025	<0.01	0.02	<0.02	<0.02	0.31	<0.02	<0.02	<0.02	0.25	<0.01	0.07	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/10/2025	<0.01	0.02	<0.02	<0.02	0.34	<0.02	<0.02	<0.02	0.3	<0.01	0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
MW03																		
3/12/2024	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
24/03/2025	<0.01	<0.01		-	<0.02		-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-
21/07/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/10/2025	<0.01	<0.01	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
MW04																		
2/12/2024	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
24/03/2025	<0.01	<0.01		-	<0.02		-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-
21/07/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/10/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
MW05																		
2/12/2024	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
24/03/2025	<0.01	<0.01		-	0.13		-	-	0.06	<0.01	<0.02	-	-	-	-	<0.02	-	-
22/07/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/10/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
MW06																		
2/12/2024	<0.01	0.01	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	0.03	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
24/03/2025	<0.01	<0.01		-	0.04		-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-
22/07/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/10/2025	<0.01	0.02	<0.02	<0.02	0.23	<0.02	<0.02	<0.02	0.14	<0.01	0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05

Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorobutanoic acid (PFBA)	N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSSA)	N-ethyl perfluorooctane sulfonamide (N-EtFOSA)	N-methyl perfluorooctanesulfonamido ethanol (N-MeFOSE)	N-ethyl perfluorooctanesulfonamido ethanol (N-EtFOSE)	N-Methyl perfluorooctane sulfonamide (N-MeFOSA)	N-methyl perfluorooctane sulfonamido acetic acid (N-MeFOSSAA)	Sum (PFHxS + PFOS)	Sum of PFAS	Sum of WA DWER PFAS (n=10)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
0.02	0.02	0.1	0.02	0.05	0.05	0.05	0.05	0.02	0.01	0	0.01	0.05	0.05	0.05	0.05
<0.02	<0.02	0.5	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	11	11.1	<0.05	5.51	0.07	<0.05
-	-	0.2	-	-	-	-	-	-	<0.01	-	6.97	<0.05	4.45	0.07	<0.05
<0.02	<0.02	0.2	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	6.6	6.52	<0.05	4.31	0.09	<0.05
<0.02	<0.02	0.4	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	8.8	8.72	<0.05	4.18	0.09	<0.05
<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.1	1.05	<0.05	0.22	<0.05	<0.05
-	-	<0.1	-	-	-	-	-	-	<0.01	-	0.63	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0.9	0.85	<0.05	0.2	<0.05	<0.05
<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.1	1.07	<0.05	0.21	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
-	-	<0.1	-	-	-	-	-	-	<0.01	-	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0	0.02	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
-	-	<0.1	-	-	-	-	-	-	<0.01	-	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0.1	0.09	<0.05	<0.05	<0.05	<0.05
-	-	<0.1	-	-	-	-	-	-	<0.01	-	0.04	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0.6	0.6	<0.05	0.16	<0.05	<0.05

Surface Water																			
SW01																			
3/12/2024	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
9/01/2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<0.01	<0.01	-	-	<0.02	-	-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-	-
28/10/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
SW02																			
20/11/2024	<0.01	<0.01	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
9/01/2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<0.01	0.14	-	-	0.85	-	-	-	0.74	<0.01	0.37	-	-	-	-	<0.02	-	-	-
SW03																			
25/03/2025	<0.01	<0.01	-	-	0.03	-	-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-	-
SW04																			
20/11/2024	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
9/01/2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<0.01	<0.01	-	-	<0.02	-	-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-	-
28/10/2025	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
SW05																			
20/11/2024	<0.01	0.02	<0.02	<0.02	1.39	<0.02	<0.02	<0.02	0.61	<0.01	0.18	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
9/01/2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<0.01	<0.01	-	-	0.22	-	-	-	0.12	<0.01	0.05	-	-	-	-	<0.02	-	-	-
3/11/2025	<0.01	0.01	<0.02	<0.02	0.52	<0.02	<0.02	<0.02	0.26	<0.01	0.12	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
SW06																			
20/11/2024	<0.01	<0.01	<0.02	<0.02	0.49	<0.02	<0.02	<0.02	0.23	<0.01	0.08	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
9/01/2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<0.01	<0.01	-	-	0.16	-	-	-	0.11	<0.01	0.04	-	-	-	-	<0.02	-	-	-
3/11/2025	<0.01	0.02	<0.02	<0.02	0.57	<0.02	<0.02	<0.02	0.28	<0.01	0.12	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
SW07																			
3/12/2024	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
9/01/2025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25/03/2025	<0.01	<0.01	-	-	<0.02	-	-	-	<0.02	<0.01	<0.02	-	-	-	-	<0.02	-	-	-
SW08																			
28/10/2025	<0.01	<0.01	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05

<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	<0.1	-	-	-	-	-	-	<0.01	-	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0	0.03	<0.05	<0.05	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	0.2	-	-	-	-	-	-	<0.01	-	2.5	<0.05	0.2	<0.05	<0.05
-	-	<0.1	-	-	-	-	-	-	<0.01	-	0.03	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	<0.1	-	-	-	-	-	-	<0.01	-	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	0.2	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	3.6	3.59	<0.05	1.11	0.08	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	<0.1	-	-	-	-	-	-	<0.01	-	0.89	<0.05	0.5	<0.05	<0.05
<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.3	1.28	<0.05	0.27	<0.05	<0.05
<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.2	1.2	<0.05	0.3	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	<0.1	-	-	-	-	-	-	<0.01	-	0.84	<0.05	0.53	<0.05	<0.05
<0.02	<0.02	0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	1.3	1.32	<0.05	0.23	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	<0.1	-	-	-	-	-	-	<0.01	-	<0.01	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.1	<0.02	<0.05	<0.05	<0.05	<0.05	<0.02	<0.01	0	0.03	<0.05	<0.05	<0.05	<0.05