Construction Monitoring Report No. 5

Sydney Metro West – Western Tunnelling Package

July 2024 to January 2025

ISSUE DATE: APRIL 2025

Document Details

Document Title	**Construction Monitoring Report No. 5**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Principal Contractor	**Gamuda Australia**
ABN	**36 636 433 522**
Project Address	**L8, 60 Station Street, Parramatta NSW 2150**

Document Authorisation

Revision	Date	Description of changes	Prepared by
Rev A	11/04/2025	Collation of Finalised Monitoring Reports	Hussain Nilar

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1 INTRODUCTION

1.1 Background

Sydney Metro West (SMW) is a new underground railway connecting Greater Parramatta and the Sydney CBD. It will provide fast connections between greater Sydney's two major business centres as well as providing better access to the growing business and entertainment precincts in Olympic Park and Pyrmont, the health and medical research hub at Westmead and the future business and tourism site at The Bays.

An Environmental Impact Statement (EIS) (Jacobs/Arcadis, 2020) for the Concept and Stage 1 assessed the surface water quality impacts in response to the Secretary Environmental Assessment Requirements issued by the Department of Planning Housing and Infrastructure (DPHI). The Project was approved on 11 March 2021 (SSI 10038).

1.2 Project Description

Sydney Metro is delivering the Sydney Metro West project via several different packages, including the Western Tunnelling Package (WTP, the Project).

The WTP Project locations are from Westmead to Sydney Olympic Park. Figure 1 provides an overview of the WTP Project work sites and locations.

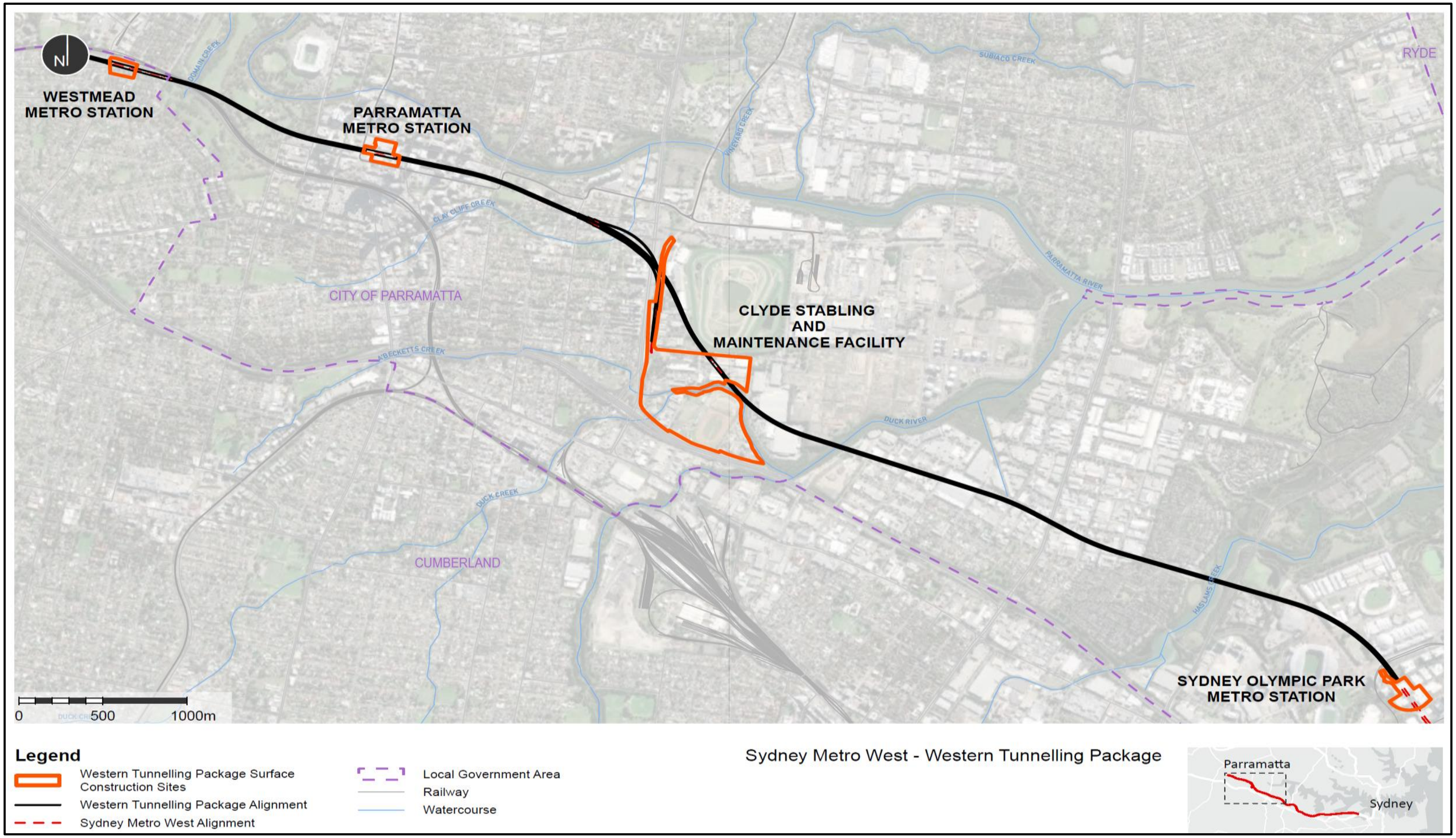

Figure 1 WTP Project Map Overview

1.3 Project Requirements

The Construction Monitoring Programs set out the requirement to develop and issue a Construction Monitoring Report (this report), collating noise and vibration, surface water and groundwater monitoring data every six months. This report collates the noise and vibration, surface water and groundwater monitoring undertaken during the reporting period of 20th July 2024 to the 19th January 2025.

The Project requirements relevant to the preparation of this Construction Monitoring Report are identified in Table 1. A document reference is also included to indicate where the requirement is addressed in this Monitoring Report or other documents.

Table 1 Monitoring Report Compliance Matrix.

<table>
<tr><th>REFERENCE</th><th>REQUIREMENTS</th><th>DOCUMENT REFERENCE</th></tr>
<tr><td>Condition of Approval C14</td><td>The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 of this schedule or in the CEMP:
<table>
<tr><th></th><th>Required Construction Monitoring Programs</th><th>Relevant government agencies to be consulted for each Construction Monitoring Program</th></tr>
<tr><td>(a)</td><td>Noise and vibration</td><td>EPA, SOPA (in respect of Sydney Olympic Park), Place Management NSW (in respect of The Bays) and Relevant Council(s)</td></tr>
<tr><td>(c)</td><td>Surface Water Quality</td><td>DPE Water, Relevant Council(s) and Sydney Water (if any Sydney Water assets are impacted)</td></tr>
<tr><td>(d)</td><td>Groundwater</td><td>DPE Water and SOPA (in respect of Sydney Olympic Park)</td></tr>
</table></td><td>(a) Section 1.2 of the Noise and Vibration Monitoring Program (SMWSTWTP-GLO-1NL-NV-RPT-000002)
(b) Section 1.3 of the Surface Water Quality Monitoring Program (SMWSTWTP-GLO-1NL-EN-RPT-000009)
(c) Section 1.4 of the Groundwater Monitoring Program (SMWSTWTP-GLO-1NL-EN-RPT-000008).</td></tr>
<tr><td>Condition of Approval C23</td><td>The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.</td><td>This document.</td></tr>
</table>

1.4 Summary of Works

The construction activities and associated plant and equipment used at each of the construction sites are outlined in Table 2**.** These activities generally aligned with those observed to be underway on-site during the works during the reporting period:

Table 2 Construction Activities undertaken during the reporting period.

SITE	CONSTRUCTION ACTIVITIES	WATER TREATMENT PLANT DISCHARGING?
Westmead	• Box Excavation (with Hydraulic Hammers) • Box Excavation (fully enclosed) • Box Excavation – rock bolting/shotcrete (with acoustic shed/cover) • Mined Tunnel Excavation • Delivery of Equipment (including heavy oversized overmass deliveries and plant) & Spoil Haulage	No

	• General operation of ancillary facility • Gantry crane operation • Installation of Monitoring Equipment • Operation of the Water Treatment Plant (no discharge offsite) • Form, reinforcement and concrete pours for station box blinding slabs	
Parramatta	• Archaeological clearance • Removal and/or relocating utilities • Establishing concrete slabs or piling platforms and D-Wall Infrastructure • Station Box D-Wall Excavation & Construction • FRP (Form, Reo & Pour) – Concrete Works Capping Beam • Internal haul road and station box bridge • Box excavation Ground Support – Internal Struts & Waler Installation • Box Excavation to ~26m • Delivery of Equipment / General Truck Movements • General operation of ancillary facilities • Nozzle construction and demobilisation – fissure grouting • Nozzle construction and demobilisation – canopy tube installation • Nozzle construction and demobilisation – concrete D-wall removal • Nozzle construction and demobilisation – ground support and excavation • Nozzle construction and demobilisation – tunnel spoil loadout • Nozzle construction and demobilisation – Rock bolting • Tunnel invert concreting work • General operation of ancillary facilities • Instrumentation and monitoring works within and adjacent to site. • Installation of Monitoring Equipment • Station box maintenance works • On-going use of Water Treatment Plant	Yes (To EPL discharge point 5)
Clyde Dive[1]	• Bulk earthworks • Decline structure construction (Piling) • Decline structure construction (capping beam) • Spur Line lining • Spur line and Junction excavation • Junction lining • General operation of ancillary facilities • Grout pump station operation - Lining Erection Machine (LEM)	Yes – Transfer to Rosehill Water Treatment Plant
Clyde MSF[1]	• Construction site establishment/demolition of structures • Traffic adjustments • Haul roads and site amenities • PASS treatment • Bulk Earthworks • Drainage installation & combined services route • Utility trench and services corridor works • FRP works, Concrete works and retaining walls • Water conveyance structure – construction and finishing works • Unwin Street Diversion – construction • Unwin Street Overpass delivery • General operation of ancillary facility • Utility adjustment works • Clearing Vegetation + implementation of ERSED controls • Ground Improvement work	Yes – Transfer to Rosehill Water Treatment Plant

	• General operation of ancillary facility • Contamination remediation • Creek adjustment works	
Rosehill[1]	• FRP concrete work • Delivery of segments and equipment • TBM construction, excavation and spoil handling • General operation of ancillary facility • Spoil haulage • Water treatment plant operation • Grout plant operation	Yes, discharged to EPL point four (Duck River)
Sydney Olympic Park	• Instrumentation and monitoring works within and adjacent to site • TBM retrieval works including shotcreting • Tunnel nozzle construction and concreting works • General operation of ancillary facility	Yes, transfer to the Rosehill Water Treatment Plant.

[1] The Clyde Maintenance Stabling Facility consists of three sub-sites, specifically the Clyde Dive, Clyde MSF and Rosehill construction sites.

2 SUMMARY OF RESULTS

2.1 Noise and Vibration Monitoring Report Summary

Refer to Attachment A for the Construction Noise and Vibration Monitoring Report July 2024 to January 2025 (SMWSTWTP-GLO-1NL-NV-RPT-000005) for the reporting period.

2.1.1 Air borne Noise

Noise and vibration monitoring between July 2024 and January 2025 was undertaken in accordance with the WTP Noise and Vibration Management Plan (NVMP), Noise and Vibration Monitoring Program (NVMoP) and Detailed Noise and Vibration Impact Statement (DNVIS). Attended monitoring was conducted in line with the Project EPL and NVMP.

During the reporting period a total of 97 attended monitoring sessions were recorded. Of the 61 monitoring sessions identified to exceed the Predicted Noise Level (PNL) or Noise Management Level (NML), these exceedances were attributed to high ambient noise levels or non-construction related noise sources and therefore were not associated with the Project. Further, where the observed noise level exceeded the predicted noise levels, the mitigation measures emplaced remained appropriate for the observed noise impact level, in accordance with the Sydney Metro Construction Noise and Vibration Strategy (CNVS). A detailed attended noise monitoring report for individual monitoring sessions is provided within the tables of Attachment 2 of the Noise and Vibration Construction Monitoring Report No.4 (Attachment 1 of this document).

During the reporting period, unattended noise monitoring was also undertaken. A total of fourteen (14) devices were located across five (5) construction sites, namely Clyde Dive, Clyde MSF, Parramatta, Sydney Olympic Park and Westmead. A total of 869 noise exceedances above NMLs were identified at the monitoring locations across the sites, however the primary source of noise was consistently identified to be extraneous noise sources. This was further verified with attended noise monitoring. This was further verified with attended monitoring as outlined in Attachment 2 of the NV Construction Monitoring Report (Attachment 1 of this document).

Ground borne Noise

Where relevant, ground borne noise monitoring was undertaken concurrently with vibration monitoring for human comfort screening levels. Monitoring was undertaken in the most habitable room of a property or in the lowest floor of a commercial building and the closest point to office rooms. During the reporting period a total of four (4) attended monitoring sessions were undertaken for ground borne noise and of these, none were identified to be above noise management levels (NML).

2.1.2 Vibration – Human Comfort

During the reporting period, a total of 21 real time vibration monitoring locations were selected across four (4) sites, namely Clyde MSF, Parramatta, Rosehill and Westmead to undertake monitoring for Human Comfort vibration levels. Recorded VDV during the reporting period indicated significantly lower predicted VDV values on receivers compared to DNVIS worst case modelling. VDV tended to stay below preferred values (daytime: 0.2m/s1/75, night-time: 0.13 m/s1/75) as discussed in Section 2.3 of this report. Instances of high VDV were investigated by the project and were commonly due to human interference such as bumps by workers.

2.1.3 Vibration – Building and Structures

During the reporting period, a total of 186 vibration exceedance triggers were received through the real time vibration monitoring devices for both Parramatta and Westmead construction sites only. Parramatta accounted for 111 exceedance event triggers across three (3) monitoring locations. Westmead accounted for 75 exceedance event triggers across three (3) monitoring locations.

Following identification of these exceedance events, the activities were immediately investigated to determine the cause of these events and to review construction activities as necessary. In most cases the cause for the exceedances were attributed to a number of factors including:

- Mechanical bumps of the monitors during handling or set up
- Bumps of the monitors due to worker movements
- Interferences due to non-work-related factors such as rainfall.
- Unidentified sources – however unrelated to construction as exceedances were observed during periods of no construction activities, or vibration intensive activities such as excavation or hammering for example.

Where an exceedance did not relate to the events listed above, a review confirmed the cause as being unrelated to construction given their instantaneous and discontinuous nature. Further, where available GLC would review CCTV records to support explanation for these observed peaks in the vibration record.

2.2 Surface Water Quality Summary

Surface Water Quality Monitoring between July 2024 and January 2025 was undertaken in accordance with the WTP Surface Water Quality Monitoring Program (SWQMoP). Refer to Attachment B for the full report (SMWSTWTP-GLO-1NL-EN-RPT-000015).

In accordance with the recommendations of the SWQ Monitoring Report No.4:

- Two sampling points (SW04 and SW05) were removed due to the removal of two new points, SW07 and SW11.
- Sampling point SW01 was relocated approximately 100m upstream of its initial location due to the encroachment of construction activities and a reduction in access capabilities.
- Removal of sampling point SW12 from the monitoring schedule due to the absence of GLC activities in the proximity of Sydney Olympic Park given there were no discharges to the adjacent receiving waterbodies.

GLC collected surface water samples from a total of 11 sampling points across the project and tested these samples against their chemical and physical properties (As per the NSW Water Quality Objectives and the Australian and New-Zealand Guidelines 2018). There was a total of 27 instances recorded, during which a downstream water parameter(‘s) was higher than the upstream sampling location. In all instances, these findings could not be directly attributed to construction activities, or could be directly correlated with external factors unrelated to the project, such as recent rainfall, run off from adjacent residential, commercial or industrial activities, as well as field equipment errors.

Results obtained from this monitoring period indicated that there has not been a degradation of the surrounding surface water network due to construction. Results are generally consistent with the adopted assessment criteria and pre-construction baseline water quality data.

2.3 Groundwater Summary

Groundwater Monitoring for the reporting period of July 2024 to January 2025 was undertaken in accordance with the WTP Groundwater Monitoring Program (GMoP). Refer to Attachment B for the complete Groundwater Monitoring Report (SMWSTWTP-GLO-1NL-EN-RPT-000016).

2.3.1 Water Treatment Plant discharge summary:

During the reporting period, two water treatment plants were operational and discharging to the environment. To permit discharges to the environment, water quality proofing of the Water Treatment Plants occurred at the Parramatta and Rosehill Water Treatment Plants (W.T.P). These are summarised as below:

- 11 sampling events occurred at the Rosehill Water Treatment Plant
- 8 sampling events occurred at the Parramatta Water Plant, and
- No sampling events occurred at the Westmead Water Treatment Plant. All water collected by the W.T.P was treated and re-used on site. .

Where sampling and discharge occurred, each sampling event consisted of a pre-treatment and post-treatment sample, which were assessed against the discharge criteria stipulated in the Project Environmental Protection License (21676).

Of the 11 sampling events for Rosehill, two returned elevated concentrations for Nitrogen. Investigations into these exceedances were undertaken:

- In the context of elevated Nitrogen– this was attributed to particularly high concentrations of these analytes in the influent for a short period of time. This was likely due to anomalies in the sources of the influent, such as activities occurring on site or potential contamination sources from groundwater.

In all instances where these exceedances were observed, targeted testing was undertaken to verify if the observed results were an anomaly or attributed to the testing process. In both instances, elevated Nitrogen levels are instantaneous, with subsequent tests being compliant with the EPL discharge criteria. To further support these findings, results collected from the Surface Water Quality Monitoring Report for the designated upstream (SW08) and downstream (SW03) sampling points produced nitrogen levels which were consistent with historic sampling rounds indicating no potential impact.

On December 19th 2024, a variation to the EPL was approved to support the increase in discharge criteria for Chromium VI and Total Nitrogen. These are summarised as below:
Chromium VI:

- 50th and 100th Percentile limits of 15ug/L and 30ug/L, respectively.

Total Nitrogen:

- 90th Percentile and 100th Percentile limits of 1200ug/L and 1800ug/L, respectively.

The Parramatta Construction Water Treatment Plant was commissioned after three (3) subsequent compliant results were returned on the 8th March 2024. As per the results, all sampling events undertaken during the reporting period were compliant with the discharge requirement of the EPL 21676 for the Parramatta Construction Water Treatment Plant. Over the reporting period, there were two periods where the demand to reuse treated water on-site has matched that of supply from the Parramatta construction water treatment plant and there was a suspension in discharge to the environment. These periods have included:

- 18th July 2024 to 31st July 2024
- 15th August 2024 to 16th August 2024

2.3.2 Groundwater level change summary:

For groundwater level monitoring, reportable changes were identified at five (5) groundwater monitoring wells (GWMWs). Those changes observed in the GWMWs were at the Clyde Dive and Rosehill sites, where dewatering activities were taking place. Reportable changes were identified from comparing current drawdown to modelled predictions of drawdown. There are no reportable changes when comparing to Aquifer Interference Policy (AIP) criteria. Therefore, the recommended action is to continue monitoring of the groundwater level and drawdown.

2.3.3 Groundwater quality observations

Revised performance criteria were generated in June 2024, as well as the process for managing exceedances against the performance criteria and was documented in the revised Groundwater Monitoring Program (SMWSTWTPGLO-1NL-EN-PRG-000002, Rev. D). The reportable changes in groundwater quality identified against the performance criteria are detailed below:

August 2024 Sampling event:

Clyde MSF

- SMW_WTP_BH25_s – Exceedances against ammonia, total nitrogen, and chlorobenzene were identified
- CZ1_BH13 – Exceedances against PFOS

Parramatta

- SMW_BH004_s - Exceedances against Copper and Nitrate

October 2024 Sampling event:

Clyde MSF

- SMW_WTP_BH25_s – Exceedances against ammonia, total nitrogen and chlorobenzene.
- SMW_WTP_BH25_w – Exceedances against total nitrogen.
- CZ1_BH13 – Exceedances against PFOS

Clyde Dive

- GALC_MW16_w - Exceedances against Total phosphorus
- SMW_ENV009_w – Exceedances against Total phosphorus

Parramatta:

- PM_BH14_w – Exceedances against Copper
- SMW_BH004_s – Exceedances against copper and nitrate

Westmead

- SMW_WTP_BH03A_w - Exceedances against Total phosphorus

For these parameters, a Mann-Kendall analysis was undertaken. The Mann-Kendall analysis identified that two reportable events were considered statistically significant (PM_BH14_w (copper) and SMW_WTP_BH03A_w (total phosphorus)). A risk assessment was therefore completed to determine whether management actions were needed, in accordance with the Rev D GMP (Section 4.2). The risk assessment determined that management actions were not needed, and continuation of quarterly monitoring is required. .

ATTACHMENTS

Attachment A – Construction Noise and Vibration Monitoring Report

Construction Noise and Vibration Monitoring Report No.5

Sydney Metro West – Western Tunnelling Package

July 2024 to January 2025

ISSUE DATE: APRIL 2025

Document Details

Document Title	**Noise and Vibration Monitoring Report No.5**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Document Reference No.	**SMWSTWTP-GLO-1NL-NV-RPT-000005**
Principal Contractor	**Gamuda Engineering (Australia)**
ABN	**36 636 433 522**
Project Address	**L8, 60 Station Street, Parramatta NSW 2150**

Document Authorisation

Revision	Date	Description of changes	Prepared by	Reviewed by
Rev A	05/03/2025	First Draft	Daniel Shutt Tam Do	Hussain Nilar
Rev B	07/04/2025	Update in response to ER and SM comments	Hussain Nilar	Hussain Nilar

Terms and Definitions

Term	Definition
AA	Acoustic Advisor
AS	Australian Standard
CEMF	Construction Environmental Management Framework
NVMoP	Construction Noise and Vibration Monitoring Program
NVMP	Construction Noise and Vibration Management Plan
CMR	Construction Monitoring Report
CNVS	Sydney Metro Construction Noise and Vibration Strategy (v4 2020)
dBA	Decibel (A-weighted)
DNVIS	Detailed Noise and Vibration Impact Statement
DPHI	Department of Planning, Housing and Infrastructure (NSW) (formerly DPE)
DSI	Detailed Site Investigation
EIS	Environmental Impact Statement
EPL	Environmental Protection Licence
ER	Environmental Representative
GLC	Gamuda Australia Laing O'Rourke Consortium
ICNG	Interim Construction Noise Guideline (EPA 2009)
MCoA	Minister's Conditions of Approval
MSF	Maintenance and Stabling Facility
NCA	Noise Catchment Area
NML	Noise Management Level
NV	Noise and Vibration
NVMoP	Noise and Vibration Monitoring Program
OOHW	Out Of Hours Work
PNL	Predicted Noise Level
PPV	Peak Particle Velocity
RBL	Rated Background Noise Level
REMMs	Revised Environmental Mitigation Measures
SMW	Sydney Metro West
SSI	State Significant Infrastructure
SWL	Sound Power Level
VDV	Vibration Dose Value
WTP	Western Tunnelling Package

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1 INTRODUCTION

1.1 Project Description

Sydney Metro West (SMW) is a new underground railway connecting Greater Parramatta and the Sydney CBD. It will provide fast connections between greater Sydney's two major business centres as well as providing better access to the growing business and entertainment precincts in Olympic Park and Pyrmont, the health and medical research hub at Westmead and the future business and tourism site at The Bays.

An Environmental Impact Statement (EIS) (Jacobs/Arcadis, 2020) for the Concept and Stage 1 assessed the Noise and vibration impacts in response to the Secretary Environmental Assessment Requirements issued by the NSW Department of Planning, Housing, and Infrastructure (DPHI). The Project was approved on 11 March 2021 (SSI 10038).

Sydney Metro is delivering the Sydney Metro West project via several different packages, including the Western Tunnelling Package (WTP, the Project). **Figure 1** is an overview map outlining the extent of the Project.

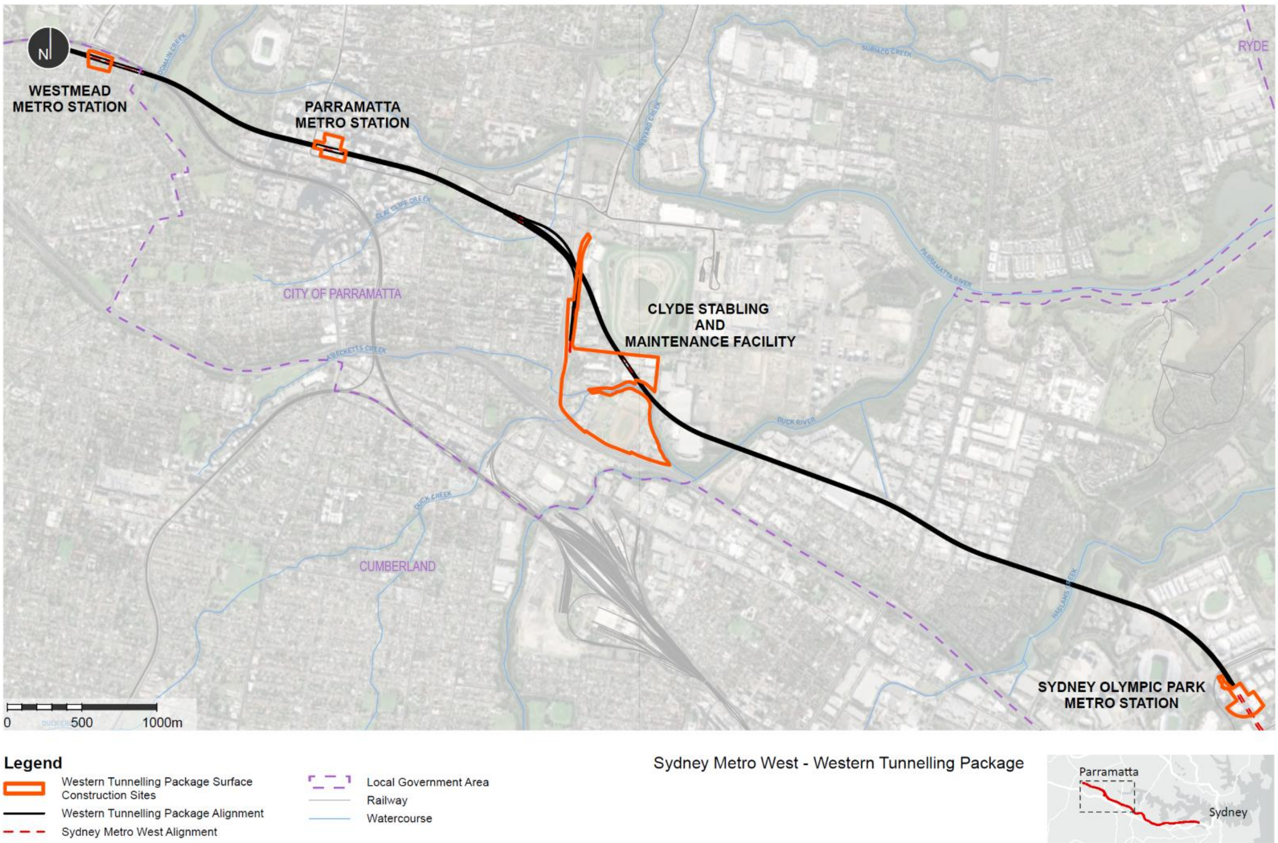

Figure 1 WTP Project Map Overview

1.2 Project Requirements

The Noise and Vibration Monitoring Program Rev G (NVMoP) sets out the requirement to develop and issue a Construction Noise and Vibration Monitoring Report (this report), collating construction noise and vibration monitoring data. This report collates noise and vibration monitoring undertaken between the 20th of July 2024 and 19th January 2025

The Project requirements relevant to the preparation of this Monitoring Report are identified in **Table 1**. A document reference is also included to indicate where the requirement is addressed in this Monitoring Report or other documents. Additional monitoring requirements are outlined in the NVMoP and construction noise and vibration project requirements are outlined in the Construction Noise and Vibration Management Plan (NVMP).

Table 1 Monitoring Report Compliance Matrix

Reference	Requirement	Document Reference
Condition of Approval C23	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	This document
CEMF 8.2	c. Noise and vibration monitoring would be undertaken for construction as specified in the CNVS. The following compliance records would be kept by Principal Contractors: Records of noise and vibration monitoring results against appropriate NMLs and vibration criteria	This report collates records of noise and vibration monitoring results against appropriate NMLs and vibration criteria, refer Appendices A-C.
REMM NV20	Undertake consultation with the Rosehill Gardens Racecourse and an equine veterinary expert to inform construction noise and vibration objectives for this sensitive receiver. d. Achievement of objectives are to be demonstrated in accordance with Noise and Vibration Construction Monitoring Program required by Conditions C15 and C16 and would include reference to equine behavioural responses where feasible.	Following completion of the Equine Study in August 2022, there was no change to Noise Objectives. Data included at Appendices A-C includes monitoring results in accordance with the NVMoP.
CNVS 6.2	**Noise Monitoring** • Noise monitoring where noise goals predicted to be exceeded All noise monitoring results would be assessed against the nominated noise goals and compiled into a report to be forwarded to the construction contractor and project manager. Reporting would be submitted to the construction contractor and project manager within one week of being undertaken or at weekly intervals for continuous monitoring. • All noise monitoring reports would also be made available to the public through a publicly accessible website.	This report includes tabulated monitoring data collected during the reporting period (Section 4.1 of this report). This monitoring report would be made publicly available on the GLC WTP website.

Reference	Requirement	Document Reference
CNVS 6.3	**Vibration Monitoring** • Vibration monitoring where exceedance of cosmetic damage criteria expected, or where human response exceedance is expected and where concerns raised. All vibration monitoring results would be assessed against the nominated vibration goals and compiled into a report to be forwarded to the construction contractor and project manager. Reporting would be submitted to the construction contractor and project manager within one week of being undertaken or at weekly intervals for continuous monitoring. • All vibration monitoring reports would also be made available to the public through the publicly accessible website.	This report includes tabulated monitoring data collected during the reporting period (Section 4.2 of this report). This monitoring report would be made publicly available on the GLC WTP website.
NVMoP	GLC data summary reports presenting tabulated monitoring data collected during the reporting period and highlighting performance criteria exceedances. Applicable management responses will be documented.	This report
NVMoP	The six-monthly monitoring reports will be provided to the relevant authorities within 10 business days of receiving endorsement by the AA.	Section 1.3

1.3 Endorsement and Publication

In accordance with the NVMoP, this Construction Monitoring Report has been provided to the independent Acoustics Advisor (AA) and Sydney Metro (SM) for review, and endorsement sought from the AA. Following endorsement, this report will be issued to the DPHI, (Environmental Representative) ER and relevant regulatory authorities for information in accordance with MCoA C23. In line with MCoA B11(e), a copy of this (Noise and Vibration) NV Construction Monitoring Report will be consolidated with GLC's other Construction Monitoring Reports (CMR's) and published on the project website as required following submission of the last Construction Monitoring Report to DPHI.

2 DESCRIPTION OF WORKS

2.1 Summary of works

The construction activities, and associated plant and equipment used at each of the construction sites, are outlined in Table 2**.** Construction activities are derived from the modelled work scenarios from the Western Tunnelling Package Detailed Noise and Vibration Impact Statement (DNVIS). These activities generally aligned with those observed to be underway on site during the works during the reporting period:

Table 2 Construction Activities undertaken during the reporting period

SITE	CONSTRUCTION ACTIVTIES	EQUIPMENT LIST
Westmead	• Box Excavation (with Hydraulic Hammers) (WM.16b) • Box Excavation (with acoustic shed/cover) (WM.17a) • Box Excavation – rock bolting/shotcrete (with acoustic shed/cover) (WM.17b) • Mined Tunnel Excavation (WM.18) • Delivery of Equipment & Spoil Haulage (WM.19) • Delivery of Equipment / Heavy Vehicle Deliveries (WM19b) • Delivery of Equipment / Heavy Vehicle Deliveries (WM19c) • General operation of ancillary facility (WM.21) • Gantry crane operation (WM.22) • Permanent Tunnel Lining and FRP (WM.23 • Installation of Monitoring Equipment (WM.24)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)
Parramatta	• Archaeological clearance (PM.03) • Removal and/or relocating utilities (PM.04) • Establishing concrete slabs or piling platforms and D-Wall Infrastructure – Approved Hours (PM.08a) • Station Box D-Wall Excavation & Construction – Approved Hours (PM.09a) • FRP (Form, Reo & Pour) – Concrete Works Capping Beam (PM.11) • Internal haul road and station box bridge (PM.12) • Box excavation Ground Support – Internal Struts & Waler Installation (PM.14) • Box Excavation to ~26m (PM.15) • Delivery of Equipment / General Truck Movements (PM.16) • Nozzle construction and demobilisation – fissure grouting (PM.17a) • Nozzle construction and demobilisation – canopy tube installation (PM17.b) • Nozzle construction and demobilisation – concrete D-wall removal (PM17.c) • Nozzle construction and demobilisation – ground support and excavation (PM17.d) • Nozzle construction and demobilisation – tunnel spoil loadout (PM.17e)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)

SITE	CONSTRUCTION ACTIVTIES	EQUIPMENT LIST
	• Nozzle construction and demobilisation – Rock bolting (PM.17f) • Tunnel invert concreting work (PM.19) • General operation of ancillary facilities (PM.18) • Installation of Monitoring Equipment (PM.22) • Station box maintenance works (PM28) • Water Management/dewatering (PM.29)	
Clyde Dive[1]	• Bulk earthworks (CD.06) • Decline structure construction (10% overlap with capping beam) (CD.08c) • Spur line excavation (CD.09) • Spur Line lining (CD.10) • Junction excavation (CD.11) • Junction lining (CD.12) • General operation of ancillary facilities (CD.14)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)
Clyde MSF[1]	• Construction site establishment/demolition of structures (MSF.01a) • Traffic adjustments (MSF.01b) • Haul roads and site amenities (MSF.02) • Earthworks (MSF.03) • Drainage installation & combined services route (MSF.04) • Utility trench and services corridor (MSF.05) • FRP works, Concrete works and retaining walls (MSF.06) • Water conveyance structure – construction (MSF.07a) • Water Conveyance Structure – Finishing Works (MSF.08) • Unwin Street Diversion – construction (MSF.09) • Unwin Street Diversion – Finishing Works (MSF.10) • Unwin Street Overpass (Piling, FRP, Earthworks, Heavy Lifting) (MSF.12a) • Unwin Streat Overpass Delivery (MSF.12b) • General operation of ancillary facility (MSF.13) • Utility adjustment works (MSF.14) • Clearing Vegetation (MSF.15) • Ground Improvement work (MSF.16) • Creek Adjustment Works (MSF.17)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)
Rosehill[1]	• FRP concrete work (RH.19) • Delivery of equipment (RH.20) • TBM Support and Spoil Handling (RH.021) • General operation of ancillary facility (RH.22)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)
Sydney Olympic Park	• TBM Retrieval (SOP.02) • TBM Retrieval, material load out and shotcrete of cross passages (SOP.02b) • Nozzle Construction (SOP.03) • General operation of ancillary facility (SOP.04)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)

SITE	CONSTRUCTION ACTIVTIES	EQUIPMENT LIST
	• Cross passage concrete pours (SOP.07)	

[1] The Clyde Maintenance Stabling Facility consists of three sub-sites, specifically the Clyde Dive, Clyde MSF and Rosehill construction sites.

2.2 Noise Management Objectives

2.2.1 Noise management levels - Residential receivers

The existing noise environment was quantified (via measurement) at representative Noise Catchment Areas (NCAs) surrounding the Project site during preparation of the Environmental Impact Statement (EIS). A summary of the measured ambient Rating Background noise Levels (RBLs) is presented in Table 3 below.

Table 3 Summary of Project Noise Management Levels

LOCATION ID	NCA	RECEIVER TYPE	NOISE MANAGEMENT LEVEL LAeq (15minute) (dBA) Approved Construction Hours (RBL +10dB)	Out of Hours (RBL +5dB)			SLEEP DISTURBANCE SCREENING LEVEL (dBA)
			DAY	DAY	EVENING	NIGHT	NIGHT
B.02	NCA01	Residential	58	53	51	46	56
B.01	NCA02	Residential	59	54	52	42	52
B.03	NCA03	Residential	68	63	58	48	58
B.04	NCA04	Residential	61	56	53	46	56
B.05	NCA05	Residential	60	55	54	50	60
B.06	NCA06	Residential	62	57	56	49	59
B.07	NCA07	Residential	56	51	49	46	56
B.08	NCA08	Residential	58	53	53	51	61
B.09	NCA09	Residential	58	53	51	46	56

Baseline data from the EIS has been reviewed and is representative of ambient noise in the Project area. No further baseline monitoring was undertaken prior to commencement or following the start of construction of the WTP.

2.2.2 Noise management levels – 'Other Sensitive' receivers

NMLs for 'Other Sensitive' Receivers are adopted from the Interim Construction Noise Guideline (ICNG) and are presented in Table 4 below.

Table 4 NML for 'Other Sensitive' Receivers - ICNG

LAND USE	ASSESSMENT PERIOD	NOISE MANAGEMENT LEVEL LAeq(15minute) (dBA)	
		Internal	External
Classrooms at schools and other educational institutions	When in use	45	55[1]
Hospital wards and operating theatres	When in use	45	65[2]
Places of worship	When in use	45	55[1]
Active recreation areas (characterised by sporting activities and activities which generate noise)	When in use	-	65
Passive recreation areas (characterised by contemplative activities that generate little noise)	When in use	-	60[3]
Commercial	When in use	-	70
Industrial	When in use	-	75

Note 1: It is assumed that these receivers have windows partially open for ventilation which results in internal noise levels being around 10 dB lower than the external noise level.

Note 2: It is assumed that these receivers have fixed windows which conservatively results in internal noise levels being around 20 dB lower than the external noise level.

Note 3: Rosehill Gardens Racecourse Stables adopts ‘Passive recreation area’ NMLs

2.2.3 Noise management levels – Ground-borne Noise

Ground-borne Noise Management Objectives are adopted from the EIS, ICNG, and Sydney Metro CNVS and are presented in Table 5 Below

Table 5 Ground-borne Noise Management Objectives

RECEIVER TYPE	NOISE MANAGEMENT LEVEL LAeq(15minute) (dBA)		
	DAYTIME	EVENING	NIGHTTIME
Residential	45	40	35
Commercial	50	N/A	N/A

2.3 Vibration Management Objectives

Vibration Management Objectives align with those described in the Sydney Metro CNVS and NVMP. These objectives are based of the British Standard BS 7385 and German Standard DIN 4150 for cosmetic damage. While *Assessing Vibration: a technical guideline* (DEC 2006) Provides criteria for human comfort and is based on Vibration Dose Value (VDV). VDV accumulates vibration energy over the daytime and night-time assessment periods. It is dependent on the level of vibration as well as the duration. Vibration criteria values are presented below in Tables 6, 7, 8.

During the reporting period, GLC were required to undertake vibration intensive activities including vibratory rolling and excavation with a large hydraulic hammer (18-34Tonne) within the safe working distances of the RTA Heritage Façade in Clyde MSF. In accordance with REMM NV16, GLC obtained a more detailed assessment of the structure in consultation with a structural engineer, as well as heritage and noise and vibration specialist to determine acceptable vibration levels and mitigation measures to ensure the heritage fabric is adequately monitored and managed. These criteria have been summarised below:

- Cosmetic damage – 25mm/s
- Minor damage – 62.5mm/s
- Major damage – 100mm/s

The results of monitoring in relation to this specialist advice are discussed in Section 4.3.2.

Table 6 Human Comfort Vibration - Vibration Dose Values for Intermittent Vibration

BUILDING TYPE	ASSESSMENT PERIOD	VIBRATION DOSE VALUE (m/s$^{1.75}$)	
		Preferred	Maximum
Critical Working Areas (e.g. operating theatres or laboratories)	Day or night-time	0.10	0.20
Residential	Daytime	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational institutions, and places of worship	Day or night-time	0.40	0.80
Workshops	Day or night-time	0.80	1.60

Table 7 Cosmetic Damage – BS 7385 Transient Vibration Values for Minimal Risk of Damage

GROUP	BUILDING TYPE	PEAK COMPONENT PARTICLE VELOCITY IN FREQUENCY RANGE OF PREDOMINANT PULSE	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

There are no structurally unsound buildings located on the project (including heritage buildings). GLC however utilise more conservative criteria in SiteHive to provide greater capacity to respond to vibration intensive works, well before the cosmetic damage criteria is neared. I.e 2.5mm/s, 5mm/s or 7.5mm/s depending on specific site location and activities occurring.

Table 8 Cosmetic Damage – DIN 4150 Guideline Values for Short-term Vibration on Structures

GROUP	BUILDING TYPE	GUIDELINE VALUES VIBRATION VELOCITY (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified as Group 1 or 2 and are of great intrinsic value (e.g. heritage listed buildings)	3	3 to 8	8 to 10	8	20

3 MONITORING METHODOLOGY

The monitoring methodology is outlined in the NVMoP. The methodology has been developed in accordance with the NVMP, NVMoP, DNVIS and policy, guidelines, and standards as listed below:

- *Interim Construction Noise Guideline* (ICNG) (DECC, 2009)
- *Sydney Metro Construction Noise and Vibration Standard* (Sydney Metro CNVS) (Sydney Metro, 2020).

A summary of the noise and vibration monitoring methodology is provided below.

3.1 Overview

The Construction Monitoring Program outlines the monitoring methodology. Modelling includes but is not limited to monitoring under the following circumstances:

- Commencement of works and at regular intervals throughout works.
- Where it has been identified that activities may exceed relevant noise and vibration goals
- In consideration of a complaint received
- During approved Out of Hours Work (OOHW) activities
- As identified by additional mitigation measures
- Where ground-borne noise or vibration generating activities are undertaken within safe working distances,
- Vibration monitoring at sensitive buildings or structures, and
- Vibration and ground-borne noise monitoring for human comfort vibration levels in response to complaints or where a risk was identified.

3.1.1 Noise Monitoring

The noise measurement procedures employed throughout the monitoring were established in accordance with the requirements of *Australian Standard (AS) 1055:2018 Acoustics - Description and Measurement of Environmental Noise*. Attended noise measurements were conducted by an operator using a calibrated handheld Type 1 'integrating averaging' sound level meter. All measurements were completed with the sound level meter mounted to a tripod stand at an approximate height of 1.2 to 1.5 metres above the ground.

Noise monitoring included recording of all noise emission sources (extraneous or otherwise) and meteorological conditions (such as wind speed, temperature, precipitation, and cloud cover etc). Relevant measurement parameters (i.e. LAeq, Lmin, Lmax, L10 and L90) were recorded in dBA. All noise samples were recorded using the "fast" time response of the sound level meter.

Unless it was unavoidable, noise monitoring was not completed within 3.5 metres of any reflective structure or wall, unless behind a barrier. A reduction of up to 2.5 dBA was not applied to the measured ambient or site noise contribution (LAeq, 15 minutes in dBA) as the barrier was reducing noise emissions from site and in general did not increase noise due to the reflective properties of the surface.

Noise monitoring was typically not undertaken during periods of heavy rain or where wind speeds exceeded 5 m/s at the microphone. Noise monitoring data impacted by extraneous weather conditions was typically excluded from the report.

3.1.2 Ground-borne Noise Monitoring

The Ground-borne noise monitoring methodology followed is similar to the methodology described in Section 3.1.1 in this report. Ground-borne noise monitoring was undertaken using a calibrated handheld Type 1 'integrating averaging' sound level meter.

All measurements were completed with the sound level meter mounted to a tripod, at a height of 1.2 to 1.5 metres above the ground. Measurements were typically taken a minimum of 1 metre from walls or other reflective surfaces. Ground-borne noise monitoring was undertaken alongside vibration measurements, where practicable.

Monitoring was undertaken in the most affected habitable room of the sensitive receiver where possible. Where multiple habitable rooms were available, the room with the best shielding from airborne noise intrusions was selected to allow ground-borne noise to be dominant.

In instances where residents did not allow access to monitor, the project aimed to monitor at the next best available location. Where permitted, audio recordings were taken to support ground-borne monitoring data.

3.1.3 Vibration Monitoring

All vibration monitoring results were assessed and reported against the acceptable values of human exposure and structural/cosmetic damage outlined in the Sydney Metro CNVS and the Project's NVMP.

Unattended vibration monitoring was undertaken with due regard to and in accordance with the requirements of the Sydney Metro CNVS and ICNG using a calibrated vibration logger.

The monitoring device was placed (fixed to the structure or embedded in the ground nearby the structure) at the potentially most affected receiver/s or structure/s prior to works commencing.

The device was set to continuously record vibration levels (PPV data in mm/s) at sample intervals (e.g. 5 second, 15 second or 1 minute) appropriate to the activity.

VDV data in $m/s^{1.75}$ for human comfort were sampled in daytime and night-time intervals at sensitive receivers for tunnelling works.

3.1.4 Monitoring Equipment

All noise and vibration measurements were conducted by suitably experienced personnel with due regard to, and in accordance with, the relevant local and international standards for environmental monitoring.

Noise and Vibration equipment was calibrated and checked to the manufacturer's specification, with certification at intervals that align with the individual product specification requirements. Equipment used on the project during the reporting period have been summarised in **Table 9**, with the corresponding Calibration certificates appended in **Attachment 5**.

The equipment used on the project are as follows:

- Site Hive Hexanode Multi (real time noise monitor for surveillance purposes)
- Rion NL-52 handheld noise monitor (for compliance monitoring).
- Omnidots SWARM V2.2cw vibration monitor (for compliance monitoring).
    - These are privately owned but managed by SiteHive and their online program.
- Site Hive Hexanode Vibration monitor (for compliance monitoring).

Table 9 Calibration dates of all noise and vibration monitors used on the project during the reporting period.

DEVICE ID	MONITOR TYPE	CALIBRATION DATE
HEX-000025	NOISE	25/03/2022
HEX-000236	NOISE	24/10/2024
HEX-000330	NOISE	13/06/2024
HEX-000420	NOISE	12/12/2023
HEX-000522	NOISE	19/08/2024
HEX-000567	NOISE	11/06/2024
HEX-000575	NOISE	11/06/2024
HEX-000596	NOISE	11/06/2024
HEX-000615	NOISE	3/06/2024
HEX-000725	NOISE	24/10/2024
VIB-000007	VIBRATION	4/07/2023
VIB-000010	VIBRATION	4/07/2023
VIB-000024	VIBRATION	5/07/2023
VIB-000030	VIBRATION	5/07/2023
VIB-000057	VIBRATION	7/09/2023
VIB-000072	VIBRATION	7/09/2023
VIB-000124	VIBRATION	5/03/2024
VIB-000126	VIBRATION	6/03/2024
VIB-000159	VIBRATION	18/10/2024
VIB-000182	VIBRATION	14/05/2024
VIB-000197	VIBRATION	1/07/2024
VIB-000206	VIBRATION	4/07/2024
VIB-000208	VIBRATION	4/07/2024
VIB-000319	VIBRATION	18/11/2024
01010867	NOISE (Handheld)	17/07/2024
34524156	Rion Noise Calibrator 75	17/07/2024
01010868	NOISE (Handheld)	9/07/2024
34524157	Rion Noise Calibrator 75	3/07/2024
01010866	NOISE (Handheld)	10/07/2024
34524759	Rion Noise Calibrator 75	10/07/2024
LECIYE	VIBRATION	3/06/2024
FIBISA	VIBRATION	18/07/2024
GEGAWE	VIBRATION	25/07/2024

3.2 Monitoring Locations

Generally, noise monitoring was carried out at the most sensitive receivers and as prescribed in the DNVIS. GLC has determined the most appropriate monitoring locations based on construction activities, community feedback, monitoring personnel safety and location of OOHW activities. Maps outlining the attended noise monitoring locations for the reporting period can be found in **Attachment 1**.

4 RESULTS

4.1 Noise Monitoring

During the reporting period a total of 97 attended monitoring sessions were recorded. GLC further classified these monitoring events into the following categories to better interpret the findings (Refer **Attachment 2**). These two classifications and findings include:

1) Monitoring events where the Predicted Noise Level (PNL) was higher than the Noise Management Level (NML)
   This categorisation uses a PNL as the target noise level to which noise monitoring results are compared against, including the implementation of appropriate mitigation measures.
   a. A total of 12 events occurred which were above the PNL
   b. A total of 31 events were equal to or lower than the PNL

2) Monitoring events where the NML was higher than the PNL.
   This categorisation uses the NML as the target noise level to which noise monitoring results are compared against, given these works would be categorised as low impact activities.
   a. A total of 49 events occurred which were above the NML
   b. A total of 5 events were equal to or lower than the NML

Of the 61 monitoring sessions identified to exceed the PNL and NML (based on the above classifications respectively), these exceedances were attributed to high ambient noise levels or non-construction related noise sources and therefore were not associated with the Project. The causes for these exceedances have been documented in the notes accompanying Tables 2.1-2.4 in **Attachment 2**. Further, where the observed noise level exceeded the relevant noise target, the mitigation measures emplaced remained appropriate, in accordance with the Sydney Metro CNVS. A detailed attended noise monitoring record for individual monitoring sessions is provided within the tables of **Attachment 2.**

During the reporting period, unattended noise monitoring was also undertaken. A total of fourteen (14) devices were located across five (5) construction sites, namely Clyde Dive, Clyde MSF, Parramatta, Sydney Olympic Park and Westmead.

A total of 869 noise exceedances above NMLs were identified at the monitoring locations across the sites, however the primary source of noise was consistently identified to be extraneous noise sources. This was further verified with attended noise monitoring as outlined in **Attachment 2**. A summary of unattended noise monitoring results has been included in **Attachment 3**. Note, some minor gaps in the unattended noise monitoring results can be attributed to typical technical and mechanical issues with the equipment including but not limited to breaks in power supply or breakdowns. Where technical or mechanical issues are identified, GLC had these rectified as can be observed by the return of normal operations and continued collection of monitoring data.

4.2 Ground borne Noise Monitoring

Where relevant, ground borne noise monitoring was undertaken concurrently with vibration monitoring for human comfort screening levels. Monitoring was undertaken in the most habitable room of a property or in the lowest floor of a commercial building and the closest point to office rooms. During the reporting timeframe a total of four (4) attended monitoring sessions were undertaken for ground borne noise and of these, none were identified to be above noise management levels (NML). These findings are presented within **Attachment 2-Table 2.3** of this report.

Gaining permission to access properties from residents however presented a significant barrier to monitoring over the reporting period. This was compounded by some difficulties that arose between coordinating the timing of monitoring with vibration activities, with the time of obtaining permission to access properties.

Ground borne noise monitoring results can be found in **Attachment 2.**

4.3 Vibration Monitoring

All vibration monitoring sessions during the reporting period were undertaken using real-time monitors that were positioned according to relevant site-specific activities and vibration monitoring requirements. Monitoring locations can be found in **Attachment 1**. Monitoring locations used to assess any potential cosmetic damages were generally located on the boundary of the nearest sensitive receiver, closest to the activity. Monitoring locations for human comfort were selected on their proximity to vibration intensive activities and following receipt of permission from building owners, managers, strata or residents, to allow installation of monitors within habitable rooms or agreed location

A number of conservative vibration damage screening criteria was utilised, depending on the location of works in proximity to different structures. It is noted that no structurally unsound buildings have been identified in proximity to the works, and therefore the more stringent screening criteria from DIN 4150-3 do not apply. Instead, BS 7385:1993 is utilised for residential, commercial and heritage buildings (Refer Section 6.3.2 of the NVMP Rev G). For structures deemed non-heritage or structurally sound, a conservative vibration screening level of 5mm/s is adopted as an early warning trigger, prompting a review of activities and work methodologies, as relevant.

Alerts are received through the SiteHive real-time monitoring platform. All vibration triggers are investigated as per the procedure outlined in the Project's NVMoP. GLC notes that, while there have been vibration events recorded over the reporting period, there has been no exceedance of the BS 7385:1993 criteria for structural or cosmetic damage observed. Vibration triggers were attributed to non-reportable, single time events such as monitor displacement, works occurring on top of monitor location, human interaction and were predominantly not associated with GLC works.

4.3.1 Human comfort

During the reporting period, a total of 21 real time vibration monitoring locations were selected across four (4) sites, namely Clyde MSF, Parramatta, Rosehill and Westmead to undertake monitoring for Human Comfort vibration levels. These locations are depicted in **Attachment 1**.

Vibration levels relating to human comfort occurred in response to mined tunnel works at the Rosehill, Parramatta and Westmead sites, as well as rock-breaker excavations for the cross passage works at Sydney Olympic Park. DNVIS worst case modelling for TBM vibration effects between the Rosehill, Westmead and Sydney Olympic Park sites showed no impact on receivers for the extent of excavation that occurred during the reporting period.

Recorded VDV during the reporting period indicated significantly lower predicted VDV values on receivers compared to DNVIS worst case modelling. VDV tended to stay below preferred values (daytime: 0.2m/s$^{1/75}$, night-time: 0.13 m/s$^{1/75}$) as discussed in Section 2.3 of this report. Instances of high VDV were investigated by the project and were commonly due to human interference as detailed below. Detailed VDV and event results can be found in **Attachment 3.**

4.3.2 Vibration Events – Buildings and Structures

During the reporting period, a total of 186 vibration exceedance triggers were received through the real time vibration monitoring devices for both Parramatta and Westmead construction sites only. Parramatta accounted for 111 exceedance event triggers across three (3) monitoring locations. Westmead accounted for 75 exceedance event triggers across three (3) monitoring locations.

Following identification of these exceedance events, the activities were immediately investigated to determine the cause of these events and to review construction activities as necessary. In most cases the cause for the exceedances were attributed to a number of factors including:

- Mechanical bumps of the monitors during handling or set up
- Bumps of the monitors due to worker movements
- Interferences due to non-work-related factors such as rainfall.
- Unidentified sources – however unrelated to construction as exceedances were observed during periods of no construction activities, or vibration intensive activities such as excavation or hammering for example.

Where an exceedance did not relate to the events listed above, a review confirmed the cause as being unrelated to construction given their instantaneous and discontinuous nature. Further, where available GLC would review CCTV records to support explanation for these observed peaks in the vibration record. This therefore supports the conclusion that these instantaneous peaks would have been caused by external sources, unrelated to construction works themselves. The results of these exceedances can be found in **Attachment 4**.

4.3.2.1 RTA Façade – Monitoring in response to Specialist Heritage/Vibration Advice

Vibration intensive works occurred adjacent to the RTA Façade to support the Unwin Street diversion and bio-retention basin works between approximately October 2024 and February 2025. Vibration monitoring indicated that there was no exceedance of the revised vibration criteria throughout the period of vibration intensive works. Monitoring data and evidence of compliance has since been supplied throughout the reporting period to the ER and Independent Auditor as part of the 6-Monthly Compliance Assessment and Independent Audit (March 2025).

4.4 Complaints Monitoring

During the reporting period only one (1) monitoring session occurred as the result of a community complaint as required by the NVMoP. The remainder of GLC's offers (13) for attended monitoring were declined by the complainants. Attended monitoring results showed one session was compliant with implemented mitigation measures. **Table 10** lists all instances where GLC offered to undertake attended monitoring, including those which were declined. Results of attended monitoring can be observed in **Attachment 2**.

Table 10 Summary of all offers of attended monitoring during the reporting period.

ID	Date	Time	Location	Details of response and monitoring event
5715	19/07/2024	09:58	Bailey Street Westmead	GLC received a complaint for noise. GLC offered the resident attended noise monitoring at their premises. The initial date proposed was not suitable given GLC would not undertake hammering. The respondent failed to schedule another date. However, review of the real time monitoring

				data indicated compliance with the noise and vibration criteria (including for human comfort).
5716	19/07/2024	23:54	Figtree drive Sydney Olympic Park	Stakeholder complained about loud machinery and metal grinding at night. At the time of the complaint, GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. Attended monitoring was offered on two accounts and declined on both attempts. Review of the real time monitoring data and prior attended noise monitoring data for the building. Both of which indicated compliance with the NML.
5720	23/07/2024	00:34	Figtree drive Sydney Olympic Park	Stakeholder complained about very loud machinery. At the time of the complaint, GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. GLC reviewed real time data, which indicated 24-hour construction activities under the EPL were being undertaken and were compliant with the noise assessments undertaken. Attended monitoring was offered but has been declined to date.
5732	25/07/2024	00:57	Figtree drive Sydney Olympic Park	Stakeholder complained about banging metal, hammering and drilling. At the time of the complaint, GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. GLC Environment Team reviewed the available real-time noise data for the time of the complaint. The activities and equipment are consistent with the noise assessment approved for the 24-hour works under the EPL. GLC have made multiple offers for attended noise monitoring however the stakeholder has refused or not responded. GLC are awaiting approval from the strata committee if noise monitoring could be undertaken inside common property.
5733	25/07/2024	01:53	Figtree drive Sydney Olympic Park	Stakeholder complained about banging metal, hammering and drilling. At the time of the complaint, GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. GLC Environment Team reviewed the available real-time noise data for the time of the complaint. The activities and equipment are consistent with the noise assessment approved for the 24-hour works under the EPL. GLC have made multiple offers for attended noise monitoring however the stakeholder has refused or not responded. GLC are awaiting approval from the strata committee if noise monitoring could be undertaken inside common property.
5734	25/07/2024	03:50	Figtree drive Sydney Olympic Park	Stakeholder complained about banging metal, hammering, drilling and sawing. At the time of the complaint, GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. The

				complainant agreed to attended noise monitoring at their property on 25 July 2024 at 11pm-12am. Attended monitoring results were consistent with earlier work weeks and was compliant with the noise predictions and Licence.
5749	02/08/2024	01:10	Figtree drive Sydney Olympic Park	Stakeholder complained about banging metal and reversing vehicles. At the time of the complaint, GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. GLC Environment Team reviewed the available real-time noise data for the time of the complaint. The activities and equipment are consistent with the noise assessment approved for the 24-hour works under the EPL. As of 2/08, two attended noise monitoring sessions have been completed (25/7/2024) within the stakeholder's property. No further response has been received from the strata manager about noise monitoring within the common area of the property. Noise monitoring indicated work were compliant with the relevant noise management levels. Stakeholder agreed to having a noise monitor placed on their balcony following the July 25th visit. GLC are currently procuring the noise monitor to place in their property for a period of a week.[1]
5750	02/08/2024	01:45	Figtree drive Sydney Olympic Park	Stakeholder complained about banging metal and reversing vehicles. GLC was undertaking works to disassemble tunnel boring machine equipment at the bottom of the station box approximately 350m north-west of the Stakeholders address. Stakeholder agreed to having a noise monitor placed on their balcony following the July 25th visit, GLC are currently procuring the noise monitor to place in their property for a period of a week.[1]
5754	05/08/2024	10:50	Bailey Street Westmead	Stakeholder complained they experienced hammering noise day and night over a couple of days. GLC were not completing any work activities on street level near Bailey Street, Westmead at the time of the complaint, and only undertaking tunnelling. GLC offered attended noise monitoring, which the Stakeholder declined.
5782	16/08/2024	11:57	Day Street Silverwater	Complainant called regarding noise and vibration from OOH work. The complainant was advised that new machinery is being used and that benching excavation within cross passage will occur up to 24/5 this week. An offer was made for noise monitoring but was declined. The complainant informed GLC that if they change their mind, they would be In touch.

5884	22/10/2024	08:48	Bailey Street, Westmead.	Stakeholder complained about noise and vibration felt at the resident's unit. GLC determined they were not completing any work activities on street level near Bailey at the time of the complaint but were undertaking waterproofing and steelwork activities within the station cavern and stub tunnels underneath the acoustic shed. No real-time vibration or ground-borne noise data is available at the Stakeholders property address. However, GLC offered the stakeholder attended noise and vibration monitoring, which has been declined to date.
5905	01/11/2024	11:18	George Street Parramatta	Complaint regarding vibration impacts during standard construction hours received. GLC were using a vibratory roller to compact backfill near the George Street (northern) side of the Parramatta Metro construction site at the time of the complaint. Real time data from a vibration monitor (41-45 George Street) indicated there were no exceedances of vibration criteria (human comfort or cosmetic damage), however GLC offered the business vibration monitoring, which has been accepted. A real-time monitoring device has since been installed in the building. Nil exceedances observed.
5966	05/12/2024	15:35	Hawkesbury Road Westmead	Complaint was received regarding noise from vacuum truck. GLC was undertaking excavation works on the Hawkesbury Road footpath to install new power cables and conduits. The works were being undertaken using a vacuum truck to avoid impacting tree roots and services. The Environmental Advisor had undertaken noise monitoring on the day of the complaint, which produced results that were below predictions and below the high noise impact threshold (75dBA). Noise blankets on temporary fencing had been installed adjacent the vacuum truck between the works and the receiver. Further Noise monitoring at residence was offered but declined.

Note 1 – GLC procured a SiteHive Noise monitor for the affected resident however failed to receive any response despite engagement for installation. As such, this monitor was never installed. Note however, attended monitoring results are available for the resident. Refer Attachment 2, Table 2.4.

5 CONCLUSION

Noise and vibration monitoring of the WTP Project during the reporting period of 20 July 2024 to 19 January 2025 was undertaken in accordance with the NVMP and NVMoP. Attended monitoring was conducted in line with the Project EPL, NVMP and NVMoP.

Generally, where attended noise monitoring events resulted in the LAeq above modelled noise levels, it was due to heightened ambient noise levels of the surrounding environment.

Vibration exceedances were due to extraneous variables such as local displacement or human interaction, or other factors unrelated to construction works themselves as determined by GLC's investigations into construction works following each exceedance.

Noise and vibration monitoring will continue in accordance with the Project NVMP, NVMoP and DNVIS.

APPENDICES

Attachment 1 – Monitoring Locations

LEGEND

- ● Vibration Monitoring Location
- — Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 55 110 220 330 440 Metres

SCALE: 1:7,200 (at A3)
PROJECTION: GDA2020 MGA Zone 56

TITLE
Vibration Monitoring from 20 July 2024 to 19 January 2025
Clyde

GAMUDA Australia
LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 1 of 5

LEGEND

- ● Vibration Monitoring Location
- — Tunnel Alignment
- ▭ Approved Construction Boundary
- ▭ Tunnel Cross Passages
- ⌐ Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,500 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Vibration Monitoring from 20 July 2024 to 19 January 2025
Parramatta

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 2 of 5

LEGEND

- ● Vibration Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 20 40 80 120 160 Metres

SCALE: 1:3,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Vibration Monitoring from 20 July 2024 to 19 January 2025
Rosehill

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 3 of 5

LEGEND

- ● Vibration Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 20 40 80 120 160 Metres

SCALE: 1:2,750 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Vibration Monitoring from 20 July 2024 to 19 January 2025
Sydney Olympic Park

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 4 of 5

LEGEND

- ● Vibration Monitoring Location
- — Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 10 20 40 60 80 Metres

SCALE: 1:1,600 (at A3)
PROJECTION: GDA2020 MGA Zone 56

TITLE
Vibration Monitoring from 20 July 2024 to 19 January 2025 Westmead

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 5 of 5

LEGEND

- Noise Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 55 110 220 330 440 Metres

SCALE: 1:7,200 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Noise Monitoring from 20 July 2024 to 19 January 2025 Clyde Map

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 1 of 5

LEGEND

- Noise Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,500 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Noise Monitoring from 20 July 2024 to 19 January 2025
Parramatta

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
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SHEETS	SHEET 2 of 5

LEGEND

- ● Noise Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 20 40 80 120 160 Metres

SCALE: 1:3,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Noise Monitoring from 20 July 2024 to 19 January 2025
Rosehill

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 3 of 5

LEGEND

- ● Noise Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

0 20 40 80 120 160 Metres

SCALE: 1:2,750 (at A3)

PROJECTION: GDA2020 MGA Zone 56

TITLE
Noise Monitoring from 20 July 2024 to 19 January 2025 Sydney Olympic Park

GAMUDA Australia

LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 4 of 5

LEGEND
- Noise Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Tunnel Cross Passages
- Suburb Boundary

CLIENT
TfNSW

PROJECT
SMW WTP

SCALE: 1:1,600 (at A3)
PROJECTION: GDA2020 MGA Zone 56

TITLE
Noise Monitoring from 20 July 2024 to 19 January 2025 Westmead

GAMUDA Australia
LAING O'ROURKE

DATE	05 MARCH 2025
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 5 of 5

Attachment 2 – Noise Monitoring Summary

Table 2.1 – Results of attended noise monitoring where the Predicted Noise Level (PNL) is higher than the Noise Management Level (NML)

Note: The last column presents the output from the Noise monitor following the completion of the monitoring event and is not a measure of compliance with the approval. Where there is an exceedance indicated, this finding should be read with the accompanying notes for the monitoring event, on account all exceedances were not attributed to construction activities alone.

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
6/08/2024	20:06:00	Parramatta	Nca03 - 119 Macquarie Street	Parra115 B Box Excavation. E5-E6 & Parra110 Canopy Tubes Installation	69.3	55	50.1	53.1	59.8	82.5	Distance from works location: 40m. Distance from receiver: 5m Type of receiver: commercial Dominant noise source: consistently site excavation works. Largest spike from buses on smith st behind monitor location. Works were separated by site hoarding. Higher noise contributions from external sources including traffic and transport.	Below or equal to the PNL
6/08/2024	20:35:00	Parramatta	25 Smith St Parramatta	Parra115 B - Box Excavation E5-E6 & Parra110 canopy tubes installation	76.1	70	51.3	54.4	59.5	76.1	Distance from works location: 90m Distance from receiver: 10m. Type of receiver: educational. Dominant noise source: Works were audible sporadically and below PNL. Loudest noises were from traffic and transport and non GLC construction works east of monitor location	Below or equal to the PNL
14/08/2024	10:36:00	Parramatta	48 George St Parramatta	PM.17c, PM.17a, PM.15, PM.05, PM.16, PM.22. PM.03	72.8	70	56.9	60	67.1	85.7	Distance from receiver 1m. Distance from works 20m. Works were mostly inaudible throughout the duration of monitoring. Dominant noise source was non project related traffic.	Below or equal to the PNL
15/08/2024	21:33:00	Westmead	NCA 02 23-25 Hassall Street	West_105 OSOM demob of excavator	64.4	52	46.2	49.5	65.1	82.3	Modelling undertaken during anticipated loudest noise impacts (low loaders leaving site) - Observed Laeq was slightly above noise predictions however this was due to non-project related noise impacts.	Exceeds the PNL
20/08/2024	20:50:00	Parramatta	25 Smith St Parramatta	Parra123 Nozzle Construction - Ground Excavation - Rock Hammering	83.3	70	49.2	52.7	62.6	78.5	Distance from source: 200m approx. Distance from receiver: 10m. Main source of noise: traffic on the intersection Works were inaudible throughout monitoring period, noise sources included traffic, pedestrians and building noise. Results were below PNL, mitigation in place including 3 hours on and 1 hour off. Site hoarding, community notification and noise monitoring was implemented.	Below or equal to the PNL
20/08/2024	21:30:00	Parramatta	45 Macquarie Street, Parramatta	Parra123 Nozzle Construction - Ground Excavation - Rock Hammering	58	56	50.5	54.6	61.8	78.7	Distance to source: approx 200m. Distance from receiver: 10m. Main source of noise: vehicles on intersection, pedestrian beeper and ventilation hum. When the works were audible for small periods of the monitoring period, they were generally observed to be below PNL. LAeq was a result of noise caused by extraneous sources such as traffic noise.	Exceeds the PNL
21/08/2024	0:55:00	Parramatta	45 Macquarie Street, Parramatta	Parra123 Nozzle Construction - Ground Excavation - Rock Hammering	56.8	48	46.1	47.7	55.4	72.2	Distance to source 70m horizontal, 15m vertical inside box excavation Distance to receiver: 3m. Main source of noise: Construction works as rock hammering, with elevated reading from tram passes Results displayed works were audible but below PNL by approx 7db. Works were above NML but mitigation measures in place including community notification, noise monitoring, site hoarding, respite as 3 on 1 off of high impact activities.	Below or equal to the PNL
21/08/2024	20:06:00	Parramatta	Nca03 - 119 Macquarie Street	Parra123 - Nozzle Construction Ground Excavation - Rock Hammering	66.3	55	47.9	51.3	59.1	79.9	Distance to source 80m. Distance to receiver 10m. Receiver type: educational. Main source of noise: traffic and transport on interchange, bus and trams produce elevated readings, quieter periods site works audible as rock hammering. Works were audible during the monitoring periods with results displaying 7db below PNL. Mitigation measures in place including community notification, noise monitoring, site hoarding, respite as 3 hours on and 1 hour off for high impact activities.	Below or equal to the PNL
21/08/2024	20:30:00	Parramatta	NCA03 169 Macquarie St, Parramatta	Parra123 Nozzle Construction Ground Excavation - Rock Hammering	67.5	55	54.1	56.6	63	82.9	Distance from source: Approx. 50m slant distance. Distance from receiver: 5m. Dominant source of noise: construction works as rock hammering of nozzles in box and road traffic. Works were audible intermittently throughout monitoring period however were always below predicted impacts. Mitigation measures implemented included, community notification and noise monitoring.	Below or equal to the PNL
11/09/2024	19:18:00	Parramatta	25 Smith St Parramatta	Parra-123 Nozzle Construction - Ground Excavation - Rock Hammering	83.3	70	59	59.5	63.6	76.2	Distance to source 70m horizontal, works were undertaken within the nozzles at an approximate depth of 15m. Distance to receiver: Approx. 3m. Main source of noise: pedestrians and tram passing. Construction works were audible intermittently (breaking). Noise impacts were below predictions,	Below or equal to the PNL
11/09/2024	19:23:00	Parramatta	NCA-03 - Parramatta Mission 119 Macquarie Street	Parra-123 Nozzle Construction Ground Excavation - Rock Hammering	66.3	55	53.4	55	53.7	74	Distance to source: Approx. 200m - works undertaken within the nozzles at an approximate depth of 15m. Distance to receiver: Approx. 10m. Dominant noise source: not project related noise - vehicles, pedestrians talking, pedestrian beeper and ventilation hum. Works were compliant with the Predicted Noise Level.	Below or equal to the PNL

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
11/09/2024	22:30:00	Parramatta	45 Macquarie Street, Parramatta	Parra-123 - Nozzle Construction Ground Excavation - Rock Hammering	56.8	48	51	54.5	62.9	86	Verification monitoring being competed for OOH Permit PARRA-134. Surface works being undertaken include concrete pump set-up and telehandler operation. Works inside of station box being undertaken including shotcreting, EWP and excavator operation. Distance from Receiver: 2m. Distance from Source (surface): 68m. Minimal to no members of the public present during monitoring; construction works inaudible; loudest noise observed was a tram bell when departing light rail station; Church and Parramatta Mission closed with no activity. Observed LAeq level was a product of extraneous noise sources (tram bell, higher than normal ambient noise levels).	Exceeds the PNL
15/09/2024	8:20:00	Parramatta	NCA-03 - Parramatta Mission 119 Macquarie Street	Nozzle Support Works - OOH Permit PARRA-134	57.7	55	49.5	50.6	54.3	72.4	Verification monitoring being competed for OOH Permit PARRA-134. Surface works being undertaken include concrete pump set-up and concrete agitator discharging. Works inside of station box being undertaken including shotcreting, EWP and excavator operation. Distance from Receiver: 2m. Distance from Source (surface): 68m. Construction activities inaudible during monitoring event. All observed noise was attributed to non-construction related sources.	Below or equal to the PNL
15/09/2024	11:20:00	Parramatta	NCA-03 - Parramatta Mission 119 Macquarie Street	Nozzle Support Works - OOH Permit PARRA-134	57.7	55	50.4	53.5	60.5	82.6	Verification monitoring being competed for OOH Permit PARRA-134. Surface works being undertaken include concrete pump set-up and concrete agitator discharging. Works inside of station box being undertaken including shotcreting, EWP and excavator operation. Distance from Receiver: 2m. Distance from Source (surface): 331m - Busy intersection throughout entire 15-minute monitoring exercise. Constant car noise & pedestrian crossing green light blinker/beeper. - Windy with gusts of wind that increased the noise level display. 500 degree steakhouse (restaurant) had music playing throughout the monitoring event that was highly audible. Construction activities inaudible throughout entire monitoring event. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
20/09/2024	9:39:00	Westmead	31 Bailey Street, Westmead	Removal of acoustic/spoil shed (approved hours) - WM.025	113	59	47.7	51.7	59	74.4	Throughout monitoring there was constant disturbances associated with strong winds, alongside this there was ongoing urban traffic and council sidewalk maintenance which consisted with the constant usage of a whipper snipper; however, these conditions were not of high noise and caused minimal interference with this noise monitoring. The result displayed below PNL readings, mitigation measures included community notification and noise monitoring.	Below or equal to the PNL
27/09/2024	6:31:00	Westmead	NCA02 - 123-129 Hawkesbury Road	Early mobilisation of concrete pump - West 112	49.1	42	47.9	49.6	57.5	74.3	Mobilisation of concrete pump through Hawksbury Road gate - distance approx. 40m. Distance of monitor to receiver: 5m. Receiver type: residential. Main source of noise: non-project related traffic. Result: monitoring displayed above PNL throughout the session. Pump mobilisation was inaudible throughout the duration of monitoring. Site noise consisted of a gate opening and shutting. Observed LAeq level was a product of extraneous noise sources and not construction.	Exceeds the PNL
27/09/2024	19:45:00	Parramatta	Nca03 - 119 Macquarie Street	PARRA-133 Steel Installations & PARRA-136 Nozzle Drilling	56.4	54	49.1	51.3	58.6	79.3	Distance from site activities = 330m. Distance of monitor to receiver = 5m. Generally a lot of traffic at the junction and noise coming from the building reception. Construction noise inaudible at the location throughout the whole monitoring event as the noise environment was heavily influenced by traffic and pedestrian activities. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
28/09/2024	22:54:00	Parramatta	Nca03 - 119 Macquarie Street	PARRA-133 Steel Installations & PARRA-136 Nozzle Drilling	56.4	55	46.6	48.1	56.5	76.7	Distance from site activities = 330m. Distance of monitor to receiver = 5m. A lot of noise and interaction was emanating from the bar behind the monitoring location. Shouting from the pub on going throughout the 15min of recording as well as heavy traffic. Construction noise inaudible at the location throughout the whole monitoring event. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
30/09/2024	20:55:00	Parramatta	NCA-03 - Parramatta Mission 119 Macquarie Street	Parra123b Nozzle Construction - Ground Support	66.3	55	48.7	N/A	58.2	77.7	Location is a place of Worship that is uninhabited during the evenings/nights. Hammering dominant noise. Drilling into d- wall (Alfabs) 2x EWP operating 1x excavator hammering 2 hours of hammering remaining after this monitoring period. Works displayed above NML readings but below PNL . Mitigation measures included community notification and noise monitoring.	Below or equal to the PNL
9/10/2024	20:04:00	Parramatta	Nca03 - 119 Macquarie Street	PARRA-133B Steel Installation & PARRA-136 Nozzles Excavation & Drilling	51.4		50.4	52.2	59.7	82.1	Distance from works 200m, distance from receiver 15m, main source of noise during the monitoring event was attributed to traffic at the intersection. Results were above PNL however works were inaudible throughout monitoring period. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
11/10/2024	10:34:00	Clyde MSF	Rosehill Stables	Rockbreaking and excavation on northbound lane (approved hours) MSF.09	83.9	60	55.6	58.4	62.4	75.8	Monitoring Distance to source: 30t excavator moving materials and unloading trucks 8-12m. 13 t excavator rock breaking 15-20m Distance of monitor to receiver: 5m to the side. Not enough space between hoarding and stables to have a representative measurement. Receiver type: Passive recreation ATC stables, Main source of noise: construction noise audible as material movements and loadout. Highest spikes produced by unloading bucket of material into empty truck trailer. Intermittent rock breaking also main source when combined with loadout of materials. Results displayed an LAeq of 62.4dBA which is above the NML60db. However considerably below the PNL 83.9db. Several mitigation measures were implemented including working behind noise blankets	Below or equal to the PNL

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
											and hoarding. 3 on 1 off respite, using minimum sized equipment as feasible and reasonable to do so, Staging of works and noise monitoring.	
11/10/2024	11:00:00	Clyde MSF	Rosehill Stables	Vac truck for NDD drainage pits (approved hours) MSF.09	80.9	60	52.3	556	67.4	76.1	Monitoring Distance to source: vac truck 15m, excavator rockbreaking 30m, excavator moving materials with bucket 15m. Distance of monitor to receiver: 5m Receiver type: Passive recreation ATC stables. Main source of noise: vac truck was the loudest construction activity, some heavy haulage passing on Unwin st was louder than the rockbreaking. Overall construction noise was the main source of noise. Results displayed lower LAeq 67.4db than the predicted noise level 80.9db. Mitigation measure in place including noise blanket atf, additional localised ATF. 3 on 1 off respite. minimal sized plant feasible and reasonable to complete the work and noise monitoring	Below or equal to the PNL
14/10/2024	22:25:00	Westmead	NCA02 - 10-12 Hassall Street Westmead	Tunnel lining and FRP works	51.7	42	45.1	N/A	57.2	86.8	Works not audible. Gentle hum audible from site. Traffic and train noise dominant sources of noise. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
14/10/2024	22:57:00	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	West 107B Lining and FRP	43.9	42	40.3	N/A	61.1	90.7	Works inaudible. Dominant noise from road traffic. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
27/10/2024	7:19:00	Clyde MSF	Rosehill Stables	MSF051C_Northern Diversion Unwin Street	82.4	60	48.4	52.1	56.7	76.9	Monitoring Distance to source: 5m. Distance of monitor to receiver: 5m Receiver type: Passive Recreation Main source of noise: Construction works - site works were the dominant noise source. Mitigation measures including noise blankets were observed to be effective, community notification and noise monitoring, works were below predictions and NMLs.	Below or equal to the PNL
27/10/2024	8:02:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF051C	54.4	50	48.2	51.8	55.4	67.4	Monitoring Distance to source: Approx. 200m Distance of monitor to receiver: 10m Receiver type: Residential Main source of noise: Traffic Result: COMPLIANT with modelling and mitigation measures implemented. Results were above predictions however works inaudible throughout monitoring. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
27/10/2024	11:03:00	Clyde MSF	Rosehill Stables	MSF051C_Northern Diversion Unwin Street	82.4	60	58.1	60.2	61	66.1	Monitoring Distance to source: 5m Distance of monitor to receiver: 5m Receiver type: Passive Recreation Main source of noise: Construction works - site works were the dominant noise source. Mitigation including noise blankets were observed to be effective, community notification and noise monitoring, works were below predictions .	Below or equal to the PNL
5/11/2024	11:45:00	Clyde MSF	Rosehill Stables	Unwin St Northern tie-in rock breaking (approved hours) MSF.09	82.9	60	55.2	57.8	67.6	81.6	Monitoring Distance to source: 20-30m. Distance of monitor to receiver: 5m Receiver type: Passive Recreation ATC Main source of noise: Site works audible as rockbreaking by 25t excavator. Results displayed LAeq 67.6d, which was below the PNL 82.9dba, by 15.3dba. mitigation measures included consultation with Receiver, noise blankets barrier, 3 to 1 respite periods, no works commencing until after 9am, noise monitoring and using the minimum plant feasible and reasonable to complete the works.	Below or equal to the PNL
5/11/2024	11:45:00	Clyde MSF	Rosehill Stables	Unwin St Northern Tie-in Rock breaking East stable (approved hours) MSF.09	86	60	46.3	50.3	61.9	74	Monitoring Distance to source: 20-25m. Distance of monitor to receiver: 8m. Receiver type: Passive Recreation ATC Main source of noise: site works audible as rockbreaking by a 25t excavator. Results were below PNL 86db by 24.1db. The works are compliant with mitigation measures including consultation with receiver, noise attenuation using the timber hoarding and atf noise blankets between works and receiver. Working respite of 3 to 1 and noise monitoring to confirm works.	Below or equal to the PNL
6/11/2024	11:15:00	Clyde MSF	Rosehill Stables	Northern Unwin St Realignment rock breaking & earthworks (approved hours) MSF.09	86	60	55.5	57.4	63.8	74	Monitoring Distance to source: 20m. Distance of monitor to receiver: 8m. Receiver type: Passive Recreation ATC Main source of noise: site works audible as rock breaking road pavement using a 25t excavator. Results displayed LAeq 63.8dba that works were considerably below the PNL 86db. Mitigation measures included consultation with receiver. Site hoarding, noise blankets, 3 to 1 respite, working during daytime hours and noise monitoring.	Below or equal to the PNL
6/11/2024	11:35:00	Clyde MSF	Rosehill Stables	Northern Unwin St Realignment Rock breaking and Earthworks (approved hours) MSF.09	82.9	60	56.4	58.3	62.8	81.5	Monitoring Distance to source: 20m to earthworks and 40m to rockbreaking. Distance of monitor to receiver: 5m. Receiver type: Passive Recreation ATC. Main source of noise: variable spikes produced from rockbreaking with a 25t excavator. Loading of concrete materials into truck using a 18t excavator and leaf vacuum vehicle from within ATC grounds. Results displayed LAeq 62.8dba, works were audible but considerably below the PNL 82.6dba . Mitigation measures in place to address the PNL included receiver consultation, noise monitoring, 3 to 1 respite, works undertaken behind noise blanket ATF, concrete barrier, a brick wall and timber hoarding.	Below or equal to the PNL
13/11/2024	4:36:00	Westmead	NCA02 - 123-129 Hawkesbury Rd	West_117 - Crane mobilisation	53.1	41	38.8	41.1	51.9	72.1	Monitoring distance to works 40m. Distance of monitor to receiver 10m. Dominant noise sources included crane movement, traffic along Hawkesbury Rd and non-project related vehicles. Works were audible for a portion of monitoring with a max LAeq of 54db <1 minute. Mitigation Measures included community consultation and noise monitoring. Observed reading was below the PNL.	Below or equal to the PNL

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
3/12/2024	20:08:00	Clyde MSF	Rosehill Stables	MSF086 - Utilities Sydney Water Potable Water Line - Water mains utilities service proving (Unwin St) & form work	71.8	60	54.1	56.1	67.7	95.6	Monitoring Distance to source: 250m. Distance of monitor to receiver: 10m Receiver type: recreational. Main source of noise: NDD truck Result: COMPLIANT and under PNL by 4.1 dBA largely due to local interference on local road. Mitigation measures implemented included community notification, installation of noise blankets on fencing atop jersey barriers, as well as timber hoarding already in place and noise monitoring.	Below or equal to the PNL
3/12/2024	22:15:00	Clyde MSF	Rosehill Stables	MSF086 - Utilities Sydney Water Potable Water Lien Stage 1 Water mains: NDD service proving	71.8	60	48	51	58.5	79.9	Monitoring Distance to source: 100m. Distance of monitor to receiver: 12m. Receiver type: recreational. Main source of noise: NDD truck. Results were below PNL by 13.3 dBA and below NML by 1.5 dBA. Mitigation measures included community notification, Noise blankets covering entire length of works area atop jersey barriers and noise monitoring.	Below or equal to the PNL
3/12/2024	22:50:00	Clyde MSF	61 Penelope Lucas Lane	MSF086 - Utilities Sydney Water Potable Water Line Stage 1 utilities: NDD service proving	51.6	50	35.2	39	43.7	70.1	Monitoring Distance to source: 270m. Distance of monitor to receiver: 15m on driveway. Receiver type: Residential Main source of noise: Road traffic. Results were below PNL and below NML by 6.3 dBA . Mitigation measures applied include community notification, noise blankets on jersey barriers adjacent to works and noise monitoring. Construction works were inaudible at monitoring location.	Below or equal to the PNL
4/12/2024	22:15:00	Parramatta	NCA03 330 Church Street, Parramatta	PARRA- 156 Spoil (sandstone) loadout from eastern box excavation	53.5	48	37	38.7	45.8	78.4	Distance to works: 400m North. Monitoring undertaken on 35th floor of Meriton Suites, window very slightly ajar (3mm) however enclosed building providing additional attenuation. Results displayed levels below PNL by 7.6 dBA and NML by 2.1 dBA, mitigation included community notification, noise monitoring and minimising acute dropping of spoil or contact with beams as noise mitigation measure; only constant engine noise audible.	Below or equal to the PNL
4/12/2024	22:50:00	Parramatta	45 Macquarie Street, Parramatta	PARRA- 156 Spoil (sandstone) loadout from eastern box excavation	54.5	48	39.8	41.2	45	78	Distance to works: 300m SW. Monitoring undertaken in common area on 24th Level; window awning open. Walls acting as noise attenuation. Results were 9.5 dBA below PNL and 3 dBA below NML. Train noise (track screeching and train passing) more audible than works when scheduled. mitigations measures in place include community notification, noise monitoring and minimising dropping of items as much as practicable onto nearby objects and opening and closing of bucket within shaft	Below or equal to the PNL
5/12/2024	14:35:00	Westmead	NCA02 - 123-129 Hawkesbury Road	Hawksbury X Priddle - Local Area Works	86	59	51.9	58.8	71.9	78.3	Monitoring distance to works 15m. Distance of monitor to receiver 5m. Main source of noise: Vacuum truck associated with Hawksbury x Priddle works. Vacuum truck was audible for a portion of the works and was the dominant noise source. Works were below the high noise impact threshold (75 dB) and below the predicted noise level (86 dB). Mitigation measures (noise blankets) were present however could be increased as they were only covering a portion of the works. Works are considered complaint with modelled predictions.	Below or equal to the PNL
9/12/2024	6:07:00	Westmead	NCA02 - 123-129 Hawkesbury Rd	OOHW_West 107 - concrete pump within acoustic shed.	42	37	44.2	46.7	56.4	77.8	Monitoring distance to works: Approx 40m. Distance of monitor to receiver 10m. Dominant noise sources included traffic along Hawkesbury Road and Bailey. Pedestrian gate in site were audible during lulls in traffic. Works were inaudible. Monitoring exceeded PNL as a result of non project related noise impacts. Observed LAeq level was a product of extraneous noise sources.	Exceeds the PNL
6/01/2025	23:02:00	Clyde MSF	Rosehill Stables	MSF089 Unwin St Realignment Works Stage 6 NDD service locating	79.7	60	46.4	51.7	54	79.7	Monitoring Distance to source: 100m. Distance of monitor to receiver: 10m. Receiver type: Recreational Main source of noise: NDD works results were below PNL and NML. Location of monitoring at the midway point between the stables where monitoring has been conducted for previous attended monitoring for Unwin St. Use of the high-pressure hose was not constant throughout the 15 minute period (only approximately 40-50% of the time) and reduction of local passing vehicles on the road reduced the LAeq considerably. Note that heavy showers occurred on the night of 6/01.	Below or equal to the PNL
7/01/2025	19:46:00	Clyde MSF	69 Penelope Lucas Lane, Granville	RH011 - Traffic island Reinstatement - removal and concrete breaking	59	54	52.7	55.3	58.3	75.2	Monitoring Distance to source: 300m. Distance of monitor to receiver: 12m. Receiver type: Residential Main source of noise: James Ruse Drive Traffic Results were below PNL and NML. Mitigation measures included community notification and noise monitoring. construction works were predominantly inaudible over the general traffic of James Ruse Drive	Below or equal to the PNL
7/01/2025	21:00:00	Clyde MSF	Rosehill Stables	RH011 - Traffic island Reinstatement Traffic island removal (hammering and concrete breaking)	78.7	60	51.9	55	60.8	78.9	Monitoring Distance to source: 400m Distance of monitor to receiver: 10m Receiver type: recreational Main source of noise: James ruse traffic Result were below PNL with mitigation measures implemented including non-continuous hammering, community notification and noise monitoring. Elevated readings throughout monitoring period due to inclement weather.	Below or equal to the PNL
7/01/2025	23:09:00	Clyde MSF	69 Penelope Lucas Lane, Granville	RH011 - Traffic island Reinstatement - Concrete breaking (excavator) and removal into tipper	58	50	41.6	44.3	48.5	64.1	Monitoring Distance to source: 300m. Distance of monitor to receiver: 12m. Receiver type: Residential Main source of noise: James Ruse Drive. Result were COMPLIANT and below PNL. Construction works inaudible. mitigation measures included community notification, noise monitoring and change of staging to prioritise traffic island removal and use of rock breaker during evening hours rather than at a later stage during the night shift.	Below or equal to the PNL

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
7/01/2025	23:36:00	Clyde MSF	6 A'Beckett St	MSF089 Unwin St Realignment Works - Concrete removal into tipper	52.5	50	40.6	43.6	48.9	70.4	Monitoring Distance to source: 300m. Distance of monitor to receiver: 7m. Receiver type: residential. Main source of noise: James Ruse traffic. Result were below PNL. Mitigation measures implemented include community notification, noise monitoring and prioritising hammering which is a louder activity during the evening period. Construction works largely inaudible throughout the monitoring period, with only 3 or 4 instances of the dropping of concrete audible (lasting 1 second each) but not discernible in monitor readings.	Below or equal to the PNL

Table 2.2 – Results of attended noise monitoring where the Noise Management Level (NML) is higher than or equal to the Predicted Noise Level (PNL)

Note: The last column presents the output from the Noise monitor following the completion of the monitoring event and is not a measure of compliance with the approval. Where there is an exceedance indicated, this finding should be read with the accompanying notes for the monitoring event, on account all exceedances were not attributed to construction activities alone.

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
5/08/2024	20:50:00	Clyde MSF	4 A'Becketts St	MSF068 Underbridge Drainage & MSF073 Creek Crossing	48	54	48.3	51.1	57.1	75.4	Monitoring Distance to source: 100m & 200m. Distance of monitor to receiver: 10m. Receiver type: Residential. Main source of noise: Traffic and aeroplanes. Works inaudible throughout monitoring. Observed LAeq level was a product of extraneous noise sources.	Above the NML
5/08/2024	22:20:00	Clyde MSF	NCA05 - 24 Hamilton St, Granville	MSF068 - Underbridge Drainage & MSF076 Deep Clean	39	49	48.4	51.8	57.6	71.8	Monitoring Distance to source: 200m. Distance of monitor to receiver: 5m. Receiver type: Residential. Main source of noise: m4 JRD traffic. Noted that nightworks on m4 overpass structure occurring, visible orange flashing lights, non-GLC related. Monitoring never fell below NML during the session. Works inaudible. Observed LAeq level was a product of extraneous noise sources.	Above the NML
6/08/2024	22:03:00	Clyde MSF	NCA01 - 24 Hamilton St, Granville	MSF068 Underbridge Drainage & MSF076 R2 Deep Clean	39	49	51	54.3	58.7	67.5	Monitoring Distance to source: 200m. Distance of monitor to receiver: 10m. Receiver type: residential. Main source of noise: traffic on the m4 overpass structures and JRD intersection. Works were inaudible throughout the monitoring and monitoring never came below the NML. Observed LAeq level was a product of extraneous noise sources.	Above the NML
15/08/2024	19:38:00	Parramatta	25 Smith St Parramatta	OOHW - Parra 125 - Nozzle Construction - Rock bolting	61	70	50.6	52.7	61.1	83.9	Distance from source: 50m horizontal then 20m vertical in box excavation. Distance from receiver: 5m. Main source of noise: construction works as rock hammering of nozzles in box. Works were audible intermittently throughout monitoring period. Works were slightly above NML 70dBA which was largely attributed to a passing bus. Mitigation measures include site hoarding in place, community notification and noise monitoring.	Below or equal to the NML
19/08/2024	20:32:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF067 Delivery of Super-T Girders Stage 1 Crane setup	48	54	56.6	60.4	70	90.2	Monitoring Distance to source: 100m. Distance of monitor to receiver: 5m. Receiver type: residential. Main source of noise: traffic on JRD overpass and more dominant traffic on m4 slip road. Result: Noise monitoring never displayed a reading below PNL. Exceedances were often attributed to passing traffic. Notable that elevated traffic enhances due to echo of concrete overpass structure amplifying noise levels. Observed LAeq level was a product of extraneous noise sources and the surrounding acoustics of the monitoring location.	Above the NML
19/08/2024	23:55:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF067 Delivery of Super-T Girders Stage 2 & 3 delivery and install	48	50	51.2	53.4	63.8	87.6	Monitoring Distance to source: 100m. Distance of monitor to receiver: 5m. Receiver type: Residential. Main source of noise: traffic dominant from JRD and M4 roads. Result: noise identified from work activities could not be isolated, continual traffic noise from JRD and M4 were the primary noise and the reason for exceedance of the NML. Observed LAeq level was a product of extraneous noise sources.	Above the NML
20/08/2024	20:05:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF067 Delivery of Super-T Girders Stage 2 & 3	49	54	52	57.5	69.1	93.7	Monitoring Distance to source: 100m. Distance of monitor to receiver: 5m. Receiver type: Residential. Main source of noise: elevated readings from Traffic on JRD and M4 slip roads Result: majority of the monitoring period was recorded above NML due to traffic and reverb of concrete overpass. Quieter period of traffic works audible but below PNL and NML. Works where feasible were being undertaken behind physical barriers including noise blankets and large concrete structures and minimised. The primary noise source was source from extraneous sources. Monitoring was undertaken within 1.5m of metal hoarding due to safety risk monitoring adjacent to m4 slip road.	Above the NML

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
9/10/2024	20:04:00	Sydney Olympic Park	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 Stage 2 Ring Construction	48.3	50	58.1	63.2	73.8	91.1	Monitoring Distance to source: 50m. Distance of monitor to receiver: 8m. Receiver type: residential. Main source of noise: heavy traffic on James Ruse Drive Mitigation measures implemented : works are below ground level within the dive structure. Noise was inaudible throughout the monitoring period, with noise readings never dropping below NML due to excessive traffic noise. Therefore, observed LAeq level was a product of extraneous noise sources.	Above the NML
14/10/2024	21:40:00	Clyde Dive	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 LEM Operations	48.3	50	54.8	N/A	75.6	105.2	Monitoring Distance to source: 80m. Distance of monitor to receiver: 10m. Receiver type: residential. Main source of noise: traffic dominated. Mitigation measures implemented: noise igloo, minimal plant. Result: observed LAeq level was a product of extraneous noise sources.	Above the NML
28/08/2024	0:49:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF067 - Stage 3 B	45	54	51.4	53.2	64	87.6	Monitoring Distance to source: 60m. Distance of monitor to receiver: 15m. Receiver type: residential. Main source of noise: traffic on JRD - works not audible. Result: Observed LAeq level was a product of extraneous noise sources.	Above the NML
28/08/2024	1:32:00	Clyde MSF	69 Penelope Lucas Lane, Granville	OOHWP MSF67 Stage 3b	49	54	50.2	N/A	60.7	82.9	Monitoring Distance to source: 60m. Distance of monitor to receiver: 15m. Receiver type: residential. Main source of noise: traffic on JRD - works not audible. Result: Observed LAeq level was a product of extraneous noise sources.	Above the NML
28/08/2024	2:10:00	Clyde MSF	69 Penelope Lucas Lane, Granville	OOWP MSF 067 STage 3b	49	54	50.4	N/A	64.9	84.5	Monitoring Distance to source: 60m. Distance of monitor to receiver: 15m. Receiver type: Residential. Main source of noise: traffic on JRD - works not audible. Result :Observed LAeq level was a product of extraneous noise sources.	Above the NML
16/09/2024	21:27:00	Sydney Olympic Park	Pullman Hotel	SOP17 Cross Passages - FRP Deliveries & Spoil Movements	55	70	49.6	51.2	54.1	70	Distance from source 70m. Distance from receiver 5m. Works were audible momentarily as a non-tonal (squawker) alarm within station box area. Dominant noise source was traffic and pedestrians on Herb Elliot Avenue. Works were below NML .	Below or equal to the NML
30/09/2024	21:25:00	Parramatta	45 Macquarie Street, Parramatta	PARRA123b - Nozzle Construction - Ground Support	43	58	50	N/A	68.5	95.4	Distance to Source 200m, distance to receiver 10m, works inaudible throughout monitoring period. Observed LAeq level was a product of extraneous noise sources.	Above the NML
1/10/2024	0:05:00	Parramatta	Nca03 - 119 Macquarie Street	PARRA123b - Nozzle Construction - Ground Support	49	56	46.5	N/A	58.2	95.4	Distance to source: 50m, distance to receiver: 10m, works audible as squawker only, elevated readings above NML. The observed LAeq level was a product of extraneous noise sources (naturally higher ambient noise levels from wind, animals, traffic).	Above the NML
1/10/2024	0:35:00	Parramatta	45 Macquarie Street, Parramatta	PARRA123b - Nozzle Construction - Ground Support	43	58	47.3	N/A	59	77.5	Distance to source: 200m, distance to receiver: 10m. Works inaudible throughout monitoring session. Observed LAeq level was a product of extraneous noise sources (naturally higher ambient noise levels from wind, animals, traffic).	Above the NML
15/10/2024	21:15:00	Clyde Dive	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 LEM Operations	48.3	50	51.6	N/A	74.2	86.8	Monitoring Distance to source: 100m. Distance of monitor to receiver: 5M. Receiver type: residential. Main source of noise: road traffic. Works inaudible throughout monitoring session. Observed LAeq level was a product of extraneous noise sources.	Above the NML
16/10/2024	3:01:00	Clyde Dive	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 LEM operation	48.3	50	46.9	N/A	69.9	85	Monitoring Distance to source: 50m to grout igloo. Distance of monitor to receiver: 10m to building facade. Receiver type: residential. Main source of noise: road traffic. Works inaudible throughout monitoring session. Observed LAeq level was a product of extraneous noise sources.	Above the NML
23/10/2024	19:27:00	Clyde Dive	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 LEM operation	48.3	50	61.5	69.3	75	86	Monitoring Distance to source: 50m to grout igloo. Distance of monitor to receiver: 10m to building facade Receiver type: residential Main source of noise: road traffic. Works inaudible throughout monitoring session. Observed LAeq level was a product of extraneous noise sources.	Above the NML

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
23/10/2024	22:14:00	Clyde Dive	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 LEM Operations	48.3	50	58.8	67.8	74.3	84.2	Monitoring Distance to source: 50m to grout igloo. Distance of monitor to receiver: 10m to building facade. Receiver type: residential. Main source of noise: road traffic. Works inaudible throughout monitoring session. Observed LAeq level was a product of extraneous noise sources.	Above the NML
23/10/2024	20:09:00	Sydney Olympic Park	Pullman Hotel	SOP17 Cross Passages - FRP Deliveries & Spoil Movements	55	70	57.9	51.3	55.6	82	Distance to works 70m. Distance to receiver 5m. Results were above NML, however, works were largely inaudible throughout monitoring period. Dominant noise source was non-project related road traffic and noise from adjacent building.	Below or equal to the NML
27/10/2024	8:23:00	Clyde MSF	4 A'Becketts St	OOHW_MSF051_C	42	54	44.3	48.4	57.1	77.6	Monitoring Distance to source: 200-300m. Distance of monitor to receiver: 10m. Receiver type: Residential Main source of noise: JRD. Result: Works inaudible throughout monitoring session. Observed LAeq level was a product of extraneous noise sources.	Above the NML
31/10/2024	21:21:00	Clyde Dive	NCA_05 - 88 James Ruse Drive, Rosehill	CD078 LEM Operations	48.3	50	61.5	69.3	75	89.5	Monitoring Distance to source: 50m. Distance of monitor to receiver: 10m. Receiver type: multi level apartment block Main source of noise: road traffic. Observed LAeq level was a product of extraneous noise sources.	Above the NML
1/11/2024	6:10:00	Westmead	NCA02 - 10-12 Hassall Street Westmead	OOHW_058	42	42	45.1	48.2	58	73.6	Monitoring was undertaken to confirm noise impacts of operating a concrete pump within the station cavern would be inaudible. Monitoring Distance to source: Slant distance approx. 50-60m. Distance of monitor to receiver: 5m. Receiver type: residential. Main source of noise: non-project related traffic. Result: monitoring displayed results above NML throughout the session. Pump operation was inaudible throughout the duration of monitoring. Observed LAeq level was a product of extraneous noise sources.	Above the NML
8/11/2024	6:18:00	Westmead	NCA02 - 123-129 Hawkesbury Rd	WM.19 - Concrete Agi discharging	42	42	46.6	49	59.4	80.2	Monitoring distance to works 40m. Distance of monitor to receiver 10m. Main source of noise: Local Road works unrelated to GLC activities were occurring in the vicinity of the monitoring location. Concrete agitator on site during monitoring and was audible during lull in traffic and when leaving site. Observed LAeq level was a product of extraneous noise sources.	Above the NML
8/11/2024	6:35:00	Westmead	NCA02 - 26-30 Bailey Street Westmead	WM.19 - Concrete Agi discharging	42	42	44.5	47.7	55.6	73	Monitoring distance to works 40m. Distance of monitor to receiver 10m. Main source of noise: road traffic. Concrete agitator not audible during monitoring. Observed LAeq level was a product of extraneous noise sources.	Above the NML
12/11/2024	6:35:00	Westmead	30 Alexandra Avenue	OOHW_West 107 - test of concrete vibrator use out of hours.	42	42	41.9	46.9	58.1	72.1	Monitoring distance to works Slant distance of approx 40m. Monitoring undertaken on surface adjacent 30 Alexandra Avenue. Vibrators located within station cavern nozzle. Distance of monitor to receiver 10m. Dominant noise sources included traffic along Hawkesbury Rd and Alexandra Ave. Concrete vibrators or site works inaudible throughout duration of monitoring. Observed LAeq level was a product of extraneous noise sources.	Above the NML
14/11/2024	20:02:00	Clyde MSF	69 Penelope Lucas Lane, Granville	Stage 3 works: Overpass bridge (EWP, hand tools), Rosehill and Clyde Dive LEM	49	54	51.8	55.2	59.2	72.9	Monitoring Distance to source: >200m. Distance of monitor to receiver: 12m. Receiver type: Residential. Main source of noise: James Ruse Drive traffic, helicopter operations. Construction noise was inaudible for the entire duration of monitoring period. Results Observed LAeq level was a product of extraneous noise sources.	Above the NML
14/11/2024	20:41:00	Clyde MSF	Rosehill Stables	Stage 3 works: EWP, hand tools	49	60	53	55.3	63.8	80.8	Monitoring Distance to source: >250m. Distance of monitor to receiver: 10m. Receiver type: Recreational. Main source of noise: local interference (vehicles on road, helicopter). Results: Construction works were largely inaudible with multiple instances of local interference on Unwin Street including large vehicles and helicopter passing overhead. Observed LAeq level was a product of extraneous noise sources.	Above the NML
14/11/2024	22:15:00	Clyde MSF	Rosehill Stables	Stage 3: EWP, hand tools on overpass, Rosehill and Clyde Dove	49	60	51	53.4	61.1	79.9	Monitoring Distance to source: 250m. Distance of monitor to receiver: 10m. Receiver type: recreational. Main source of noise: road traffic Results: Construction works were largely inaudible, Observed LAeq level was a product of extraneous noise sources.	Above the NML
14/11/2024	23:00:00	Clyde MSF	69 Penelope Lucas Lane, Granville	Stage 3: EWP, hand tools, Rosehill and Clyde Dive	49	50	45.1	50.9	54.8	67.2	Monitoring Distance to source: 300m. Distance of monitor to receiver: 12m. Receiver type: Residential. Main source of noise: road traffic. Results: Observed LAeq level was a product of extraneous noise sources.	Above the NML
18/11/2024	15:23:00	Westmead	10-12 Hassall Street, Westmead	concrete pump test - pump and agi are located within acoustic shed with door closed.	42	42	46.5	51.1	61	78	Monitoring distance to works: Approx 80m. Distance of monitor to receiver 10m. Dominant noise sources included traffic along Hassall Street and Alexandra Ave Works with construction works being inaudible throughout the duration of monitoring. Result: Observed LAeq level was a product of extraneous noise sources.	Above the NML

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
18/11/2024	15:51:00	Westmead	NCA02-26-30 Bailey Street, Westmead	concrete pump test - pump and agi are located within acoustic shed with door closed.	42	42	44.6	47	55	78.7	Monitoring distance to works: Approx 70m. Distance of monitor to receiver 10m. Dominant noise sources included traffic along Bailey Street. Works were inaudible throughout the duration of monitoring. Noise monitoring was above NMLs as a result of non-project related noise impacts (traffic).	Above the NML
18/11/2024	19:46:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF083 (Unwin Street) and MSF087 (Bridge Walkway Removal)	48.3	54	53.8	57.4	61.3	74.5	Monitoring Distance to source: Approx. 250m. Distance of monitor to receiver: 12m. Receiver type: Residential. Main source of noise: non-project related road traffic. Works were occasionally audible during lulls in traffic. Result: Observed LAeq level was a product of extraneous noise sources.	Above the NML
18/11/2024	23:12:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF083 (Unwin Street) and MSF087 (Bridge Walkway Removal)	48.3	50	47.9	51.3	56.6	68.6	Monitoring Distance to source: Approx. 250m. Distance of monitor to receiver: 12m. Receiver type: Residential. Main source of noise: non-project related road traffic. Site works were inaudible throughout the duration of monitoring. Noise monitoring results are above NMLs as a result of non-project related noise impacts.	Above the NML
19/11/2024	19:25:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF083 (Unwin Street) and MSF087 (Bridge WalkwayRemoval)	48.3	54	47.9	52.4	58.4	80.1	Monitoring Distance to source: Approx.250m. Distance of monitor to receiver:10m. Receiver type: Residential. Main source of noise: non-project related road traffic. Site works were largely inaudible throughout the duration of monitoring. Noise monitoring results are above NMLs as a result of non-project related noise impacts.	Above the NML
19/11/2024	22:03:00	Clyde MSF	69 Penelope Lucas Lane, Granville	MSF083 (Unwin Street) and MSF087 (Bridge WalkwayRemoval)	48.3	50	47.5	52	56.8	72.7	Monitoring Distance to source: 250m. Distance of monitor to receiver: 10m. Receiver type: Residential. Main source of noise: Traffic on JRD Result: . Monitoring results were above NMLS as a result of non-project related road traffic.	Above the NML
27/11/2024	20:37:00	Parramatta	45 Macquarie Street, Parramatta	Parra 153 - Nozzle Waterproofing	32	58	55.4	58.6	66.9	97.8	Distance from works 10m on surface level plus 30m deep in box, distance from receiver 5m. Receiver type: commercial. Main source of noise: extractor fan on the NAB bank building. Low impact works were inaudible throughout monitoring period. Exceedance of NMLs were a result of extraneous circumstances	Above the NML
9/12/2024	5:34:00	Westmead	10-12 Hassall Street, Westmead	OOHW_West 107 - concrete pump within acoustic shed.	42	42	44.4	47.2	57	80.7	Monitoring distance to works: Approx 70m. Distance of monitor to receiver 5m. Dominant noise sources included traffic along Hassall Street and Alexandra Ave. Site hum and pedestrian gate in site were audible during lulls in traffic. Works were inaudible. Monitoring exceeded NMLs as a result of non project related noise impacts.	Above the NML
9/12/2024	5:51:00	Westmead	NCA02 - 26-30 Bailey Street Westmead	OOHW_West 107 - concrete pump within acoustic shed.	42	42	42	44.2	50.9	69	Monitoring distance to works: Approx 70m. Distance of monitor to receiver 5m. Dominant noise sources included traffic along Hawkesbury Road and Bailey. Site hum and pedestrian gate in site were audible during lulls in traffic. Works were inaudible. Monitoring exceeded NMLs as a result of non project related noise impacts.	Above the NML
12/12/2024	5:41:00	Westmead	10-12 Hassall Street, Westmead	OOHW_West 107 - concrete pump within acoustic shed.	42	42	45.3	47.3	56.9	80.3	Monitoring distance to works: Approx 70m. Distance of monitor to receiver 5m. Dominant noise sources included traffic along Hassall Street and Alexandra Ave. Site hum was audible during lulls in traffic. Works / concrete pump was inaudible. Monitoring exceeded NMLs as a result of non-project related noise impacts	Above the NML
12/12/2024	5:58:00	Westmead	NCA02-26-30 Bailey Street, Westmead	OOHW_West 107 - concrete pump within acoustic shed.	42	42	43.5	45.7	54.7	80.6	Monitoring distance to works: Approx 70m. Distance of monitor to receiver 5m. Dominant noise sources included traffic along Bailey Street. Site hum and pedestrian gate in site were audible during lulls in traffic. Works were inaudible. Monitoring exceeded NMLs as a result of non-project related noise impacts.	Above the NML
12/12/2024	6:14:00	Westmead	NCA02 - 123-129 Hawkesbury Rd	OOHW_West 107 - concrete pump within acoustic shed.	42	42	42	45.4	63	94.2	Monitoring distance to works: Approx 40m. Distance of monitor to receiver 10m. Dominant noise sources included traffic along Hawkesbury Road and Bailey. Works were inaudible throughout duration of monitoring. Monitoring exceeded NMLs as a result of non-project related noise impacts.	Above the NML
17/12/2024	6:03:00	Westmead	10-12 Hassall Street, Westmead	No works (understanding of ambient noise of site when concrete works are not occurring).	42	42	44.7	47.1	56	72.3	Monitoring distance to acoustic shed: Approx 70m. Distance of monitor to receiver 5m. Dominant noise sources included traffic along Hassall Street and Alexandra Ave. Site hum and pedestrian gate in site were audible during lulls in traffic. Monitoring exceeded NMLs as a result of non project related noise impacts.	Above the NML
6/01/2025	20:17:00	Clyde MSF	69 Penelope Lucas Lane, Granville	Saw cutting for southern tie in of kerb and channel	50	54	46.7	51.4	55.6	74.4	Monitoring Distance to source: 300m. NW Distance of monitor to receiver: 10m. Receiver type: Residential. Main source of noise: James Ruse Drive traffic. Results Observed LAeq level was a product of extraneous noise sources.	Above the NML

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	Lmin	L90	LAeq	Lmax	Notes	Outcome
13/01/2025	19:29:00	Rosehill	Rosehill Gardens Stables	RH011 - traffic island reinstatement (Strip Klemmfix barriers and scabble under new kerbs)	43	60	49.9	51.5	59.5	81	Monitoring Distance to source: approx. 500m. Distance of monitor to receiver: 10m. Receiver type: Residential. Main source of noise: Non-project related road traffic on JRD. Works were inaudible throughout the duration of monitoring. Results were above NMLs as a result of non-project related noise impacts.	Below or equal to the NML
13/01/2025	22:40:00	Rosehill	Rosehill Gardens Stables	RH011 - traffic island reinstatement (Strip Klemmfix barriers and scabble under new kerbs)	43	60	49.6	50.7	60.3	79.5	Monitoring Distance to source: Approx. 200m. Distance of monitor to receiver: 10m. Receiver type: Recreational Main source of noise: Non-project related road traffic. Works were audible occasionally during lulls in traffic. Noise impacts from works were consistent with modelling. Results were slightly above NML as a result of non-project related noise impacts. Result: Observed LAeq level was a product of extraneous noise sources.	Above the NML
16/01/2025	20:12:00	Rosehill	Rosehill Gardens Stables	RH011	43	59	49.6	51.3	60.7	84.8	Monitoring Distance to source: Approx. 200m. Distance of monitor to receiver: 10m. Receiver type: Recreational. Main source of noise: Non-project related road traffic. Works were audible occasionally during lulls in traffic. Noise impacts from works were consistent with modelling. Results were slightly above NML as a result of non-project related noise impacts.	Above the NML

Table 2.3 – Results of Ground borne noise monitoring

Note: Where there is an exceedance indicated, this finding should be read with the accompanying notes for the monitoring event, on account all exceedances were not attributed to construction activities alone. Note – PNL = Predicted Airborne Noise levels and NML = GB Noise levels as indicated by the DNVIS.

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	L_{Aeq}	Notes
22/07/2024	10:15:00	Westmead	NCA-2 13-17 Bailey Street	WM.17a (Box Excavation with Hammering), WM.18 Mined Tunnel Excavation & WM.19 (Deliveries & Spoil Haulage)	55	45	43	GBN MONITORING EVENT Monitoring event focused on capturing rock hammering activities in Zone 1 & Zone 2 of Station Box. Monitoring was undertaken within the bedroom of an apartment building on the second story of 13-17 Bailey Street approx. 100m from the hammering activities. Construction activities at the time of monitoring including spoil load out, water cart operations, haulage trucks arriving to site and rock hammering. GLC Construction noise was inaudible throughout the duration of the monitoring period. The dominant noise source was children and activities within the residential apartment block. Works were observed to be below the NML and PNL.
15/08/2024	14:10:00	Westmead	32A Alexandra Avenue	Rock breaking cross passage	62	45	36.3	GBN MONITORING EVENT Monitoring event focused on capturing rock hammering activities in the cross passage of the stub tunnels Monitoring from source = 31m (slant distance to cross passage). Monitoring from Receiver = within living room of receiver. Dominant noise source was clock within dwelling. Construction activities during the monitoring event included rock hammering within the cross passage and use of 400T crane to demobilise plant. Only rock hammering was audible, which were audible for the majority of the monitoring event. Works were observed to be below the NML and PNL.
31/10/2024	10:20:00	SOP	1 Showground Rd, Royal Agriculture Society	None - background only	68	45	36.6	GBN MONITORING EVENT: Background monitoring prior to cross passage construction taking place. Monitoring within office building. Works were observed to be below the NML and PNL.
11/11/2024	13:00:00	SOP	1 Showground Rd, Royal Agriculture Society	Cross Passage XP55 - Rock Breaking	68	45	36.6	GBN MONITORING EVENT: Distance from works location: 36m underground. Dominant noise source: local interference from external sources including pedestrians, leaf blower and noises from surrounding rooms. Results were below PNL and NML therefore no further mitigation measures required.

Table 2.4 – Results of other attended noise monitoring

Note: Where there is an exceedance indicated, this finding should be read with the accompanying notes for the monitoring event, on account all exceedances were not attributed to construction activities alone.

Date	Time	Site	Monitoring Location	Construction Activity	PNL	NML	L_{Aeq}	Notes
25/07/2024	23:26:00	Sydney Olympic Park	2D Figtree Drive	TBM Dismantling & Retrieval Works	50.8	51	51	**Attended Monitoring for Complainant 5734:** Monitoring completed on balcony of apartment looking over site. Distance to source: 350m. Low background noise being experienced with minimal traffic, trains and activities within the Entertainment Precinct. Recorded wheel squeal/grinding from trains immediately following monitoring event at 58.3dB. Dominant noise sources from construction works were squawker from telehandler, scaffolding dismantling works and dropped metal objects. Observed values were generally consistent with the NML.
25/07/2024	23:45:00	Sydney Olympic Park	2D Figtree Drive	TBM Dismantling works including scaffolding removal	50.8	51	32.1	**Attended Monitoring for Complainant 5734**: Monitoring completed within bedroom of apartment that overlooks site. Glass doors to outside areas were closed. Distance to source: 350m. Low background noise from within the apartment being experienced including the operating washing machine, running water and air conditioning within apartment heard. Noise sources from construction works were faintly and only intermittently heard behind closed glass doors including squawker from telehandler, scaffolding dismantling works and dropped metal objects. Observed results were below NML.

Attachment 3 – Real Time (Unattended) Monitoring Summary (Noise and Vibration)

Gamuda Laing O'Rourke

SiteHive

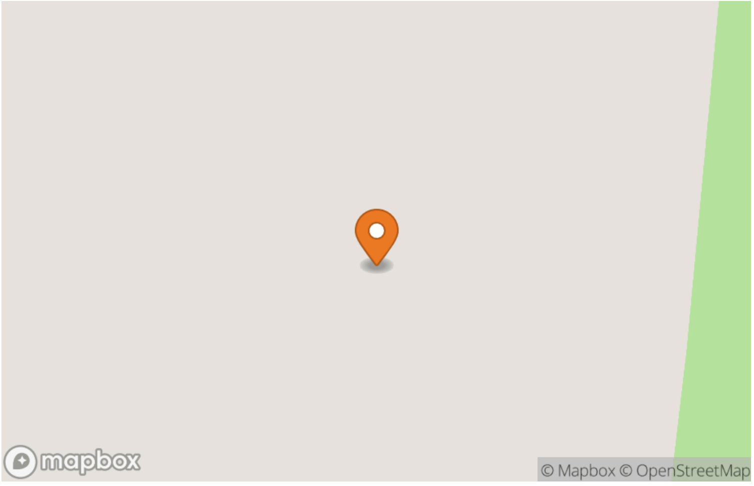
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 20Jul24_3Aug24 Clyde Dive

Monitoring Devices

Date Range 20 Jul 2024 - 03 Aug 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

59 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

53 dB — NIGHT L_{Aeq}

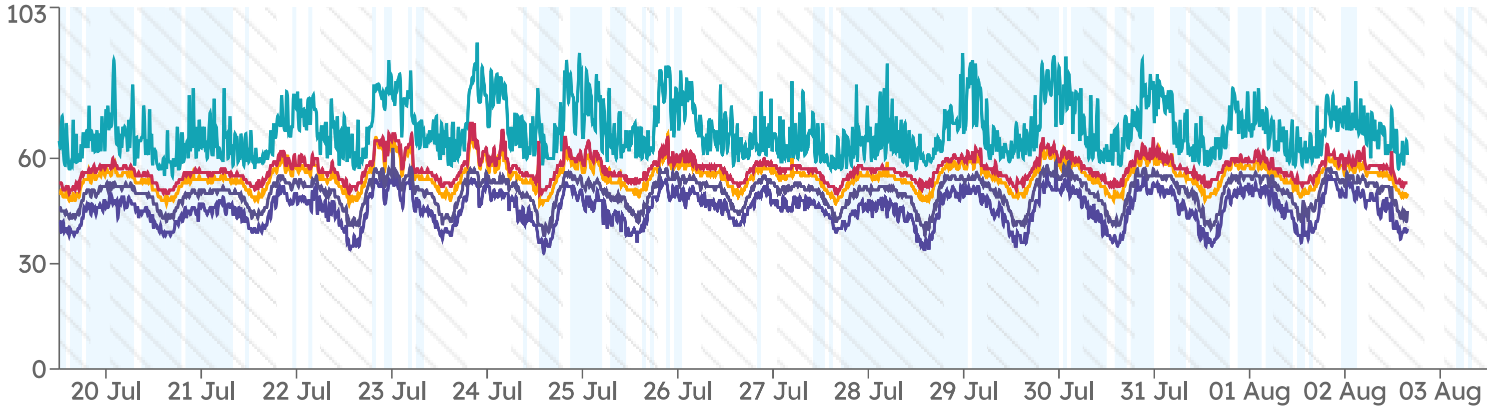
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive — **20 Jul 2024 - 03 Aug 2024**

dB 15m averages



Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

Other

- Potentially weather affected periods
- Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

SiteHive

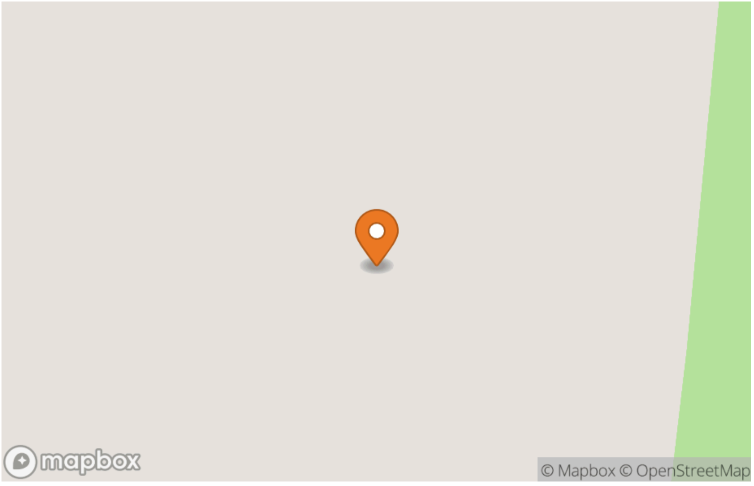
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 4Aug24_17Aug24 Clyde Dive

Monitoring Devices

Date Range 04 Aug 2024 - 17 Aug 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

Value	Period
57 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

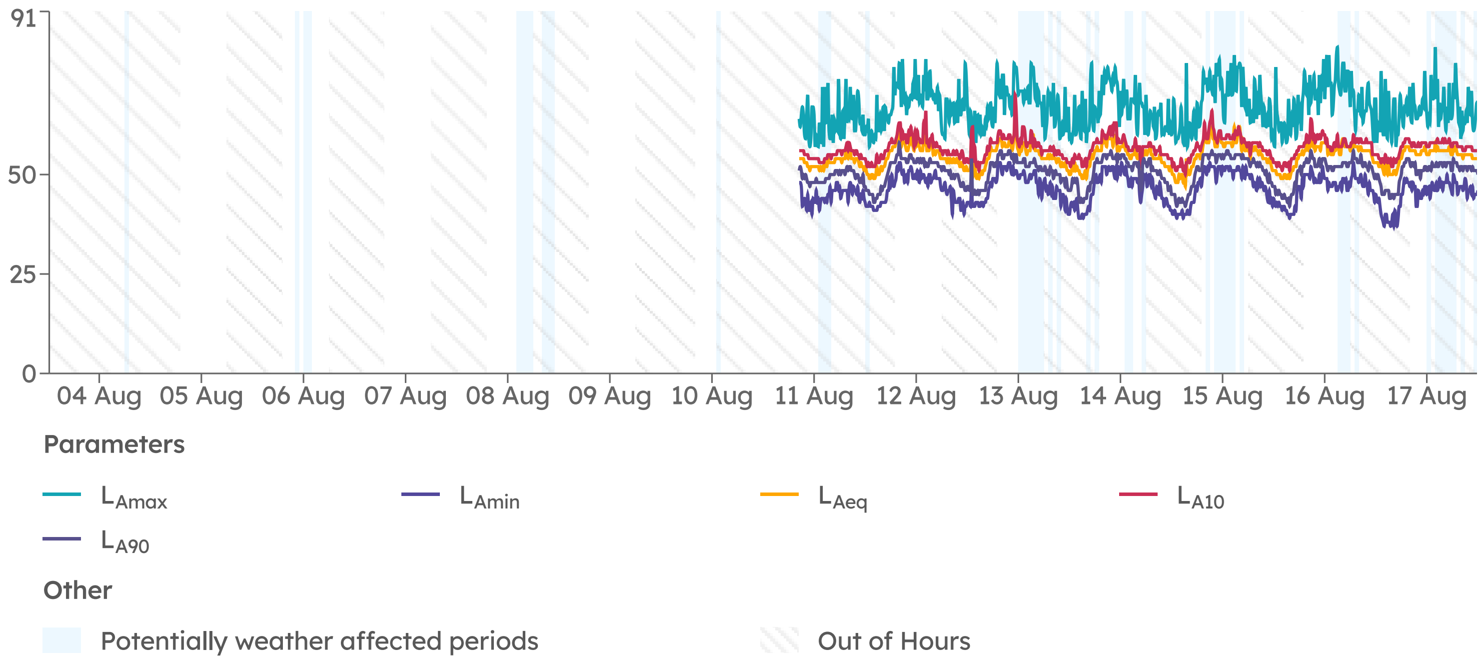
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive 04 Aug 2024 - 17 Aug 2024

dB 15m averages



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

SiteHive

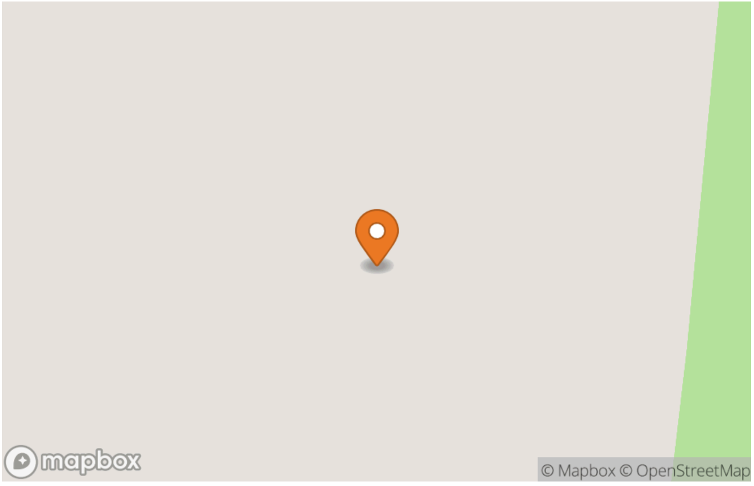
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 18Aug24_31Aug24 Clyde Dive

Monitoring Devices

Date Range 18 Aug 2024 - 31 Aug 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

59 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

54 dB — NIGHT L_{Aeq}

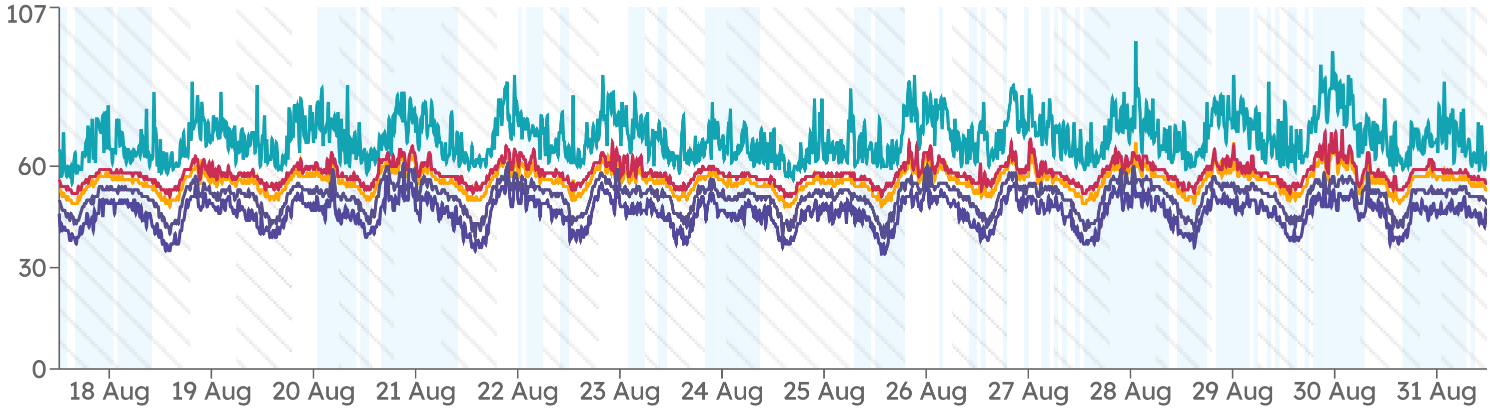
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive **18 Aug 2024 - 31 Aug 2024**

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

SiteHive

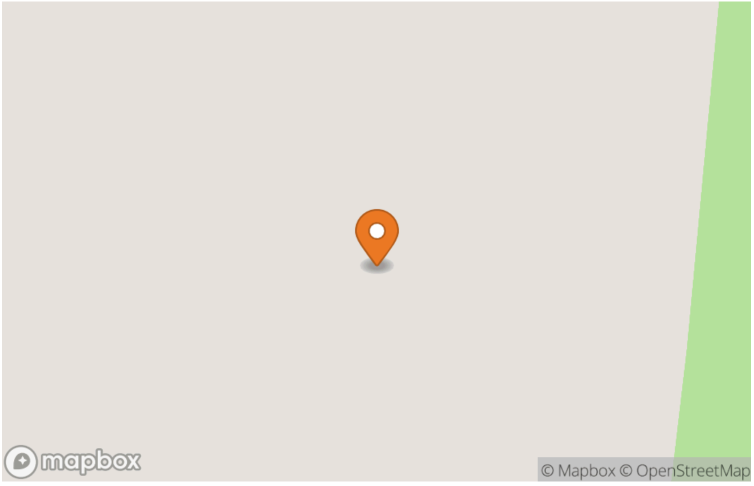
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 1Sep24_14Sep24 Clyde Dive

Monitoring Devices

Date Range 01 Sep 2024 - 14 Sep 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

61 dB — DAY L_{Aeq}

57 dB — EVENING L_{Aeq}

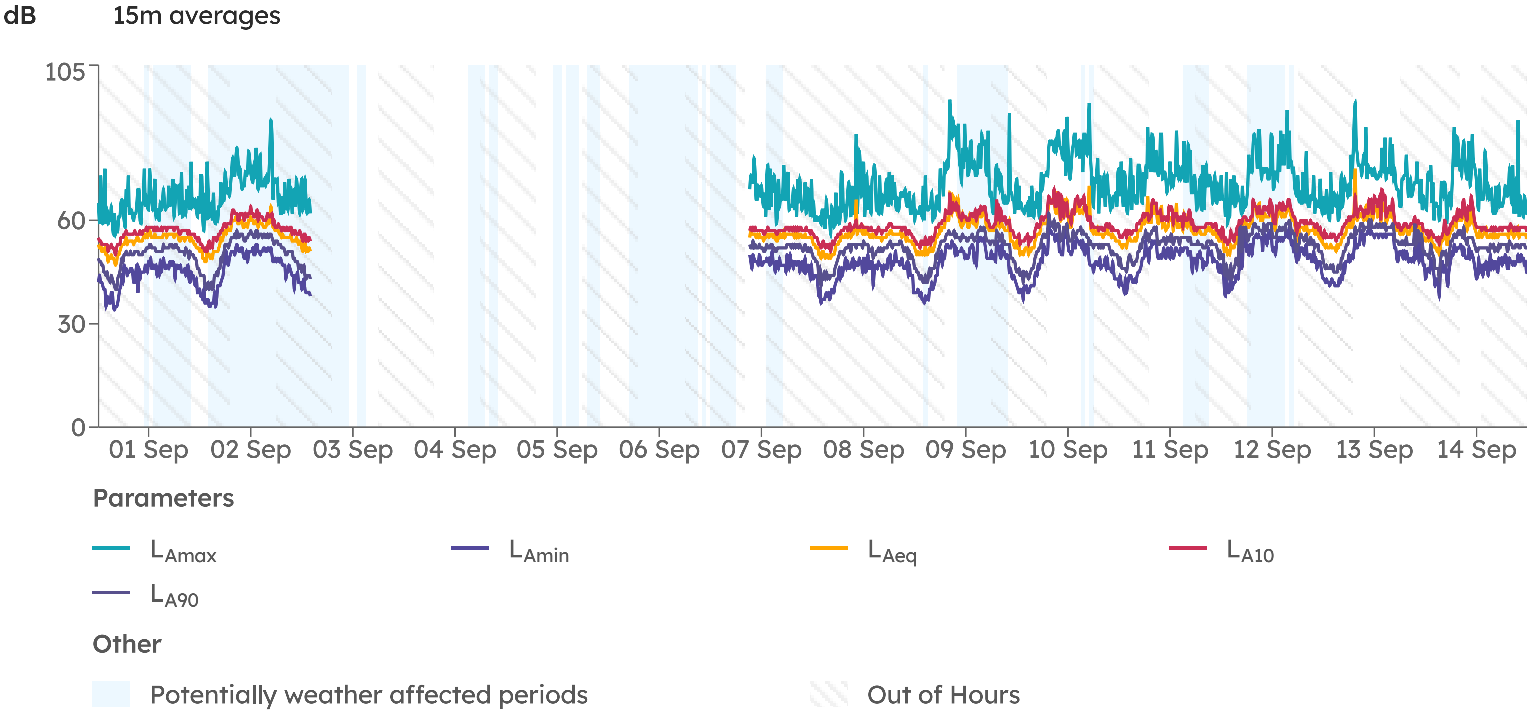
55 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive **01 Sep 2024 - 14 Sep 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

SiteHive

Gamuda Laing O'Rourke

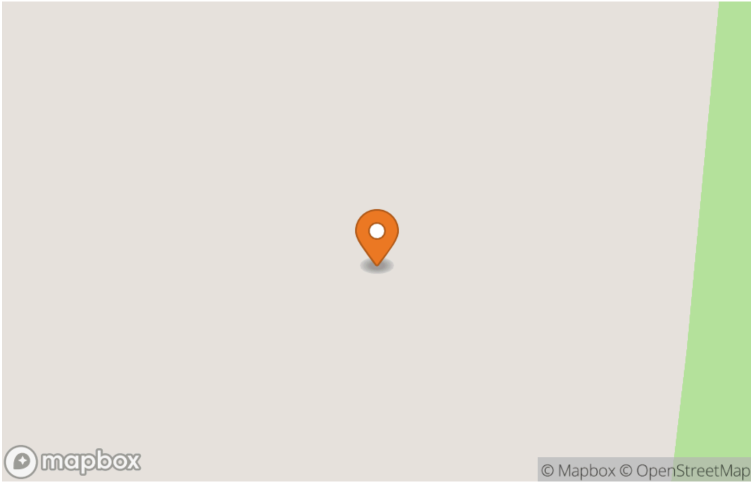
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 15Sep24_28Sep24 Clyde Dive

Monitoring Devices

Date Range 15 Sep 2024 - 28 Sep 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

61 dB — DAY — L_{Aeq}

58 dB — EVENING — L_{Aeq}

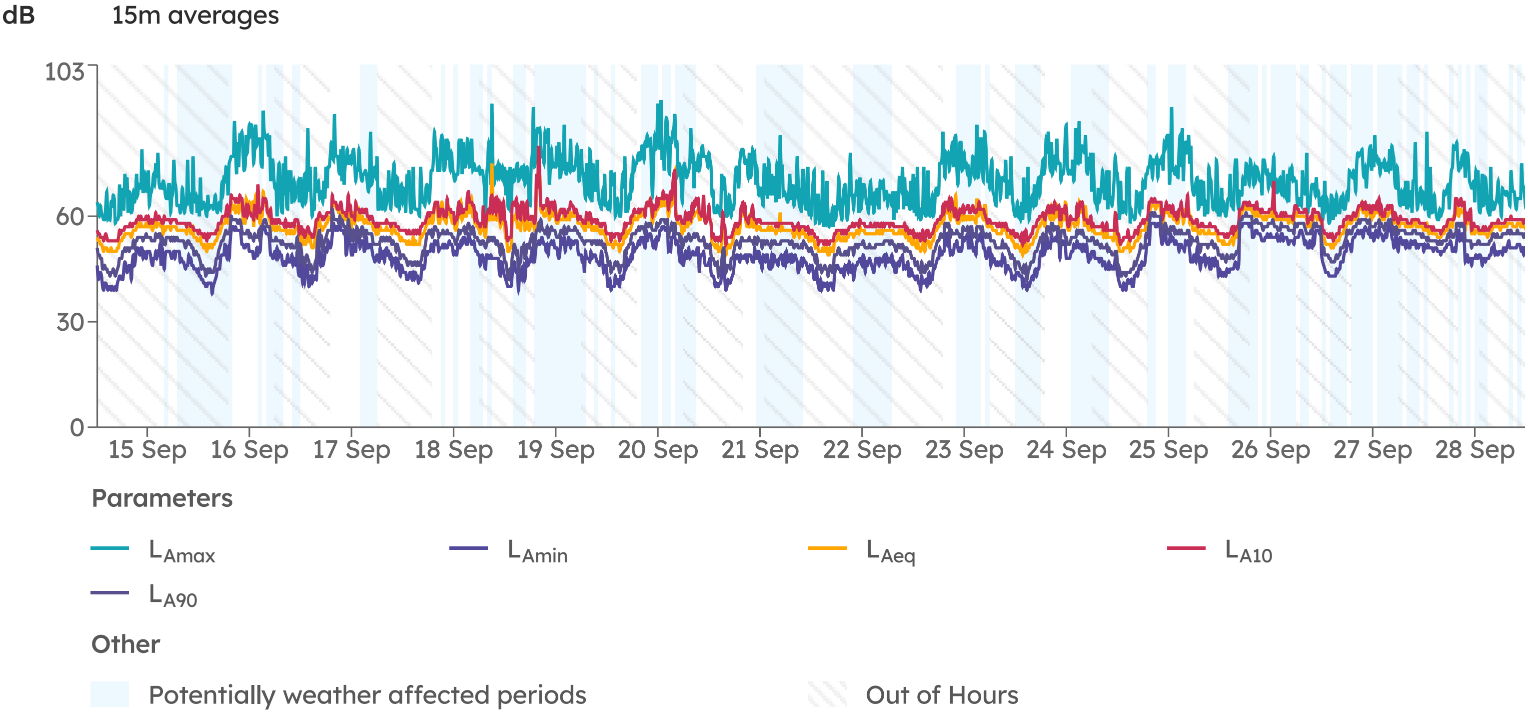
56 dB — NIGHT — L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive **15 Sep 2024 - 28 Sep 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

SiteHive

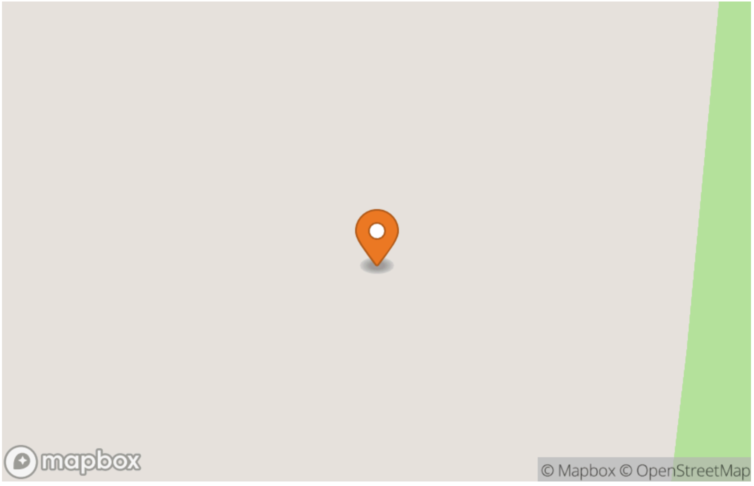
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 29Sep24_12Oct24 Clyde Dive

Monitoring Devices

Date Range 29 Sep 2024 - 12 Oct 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

59 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

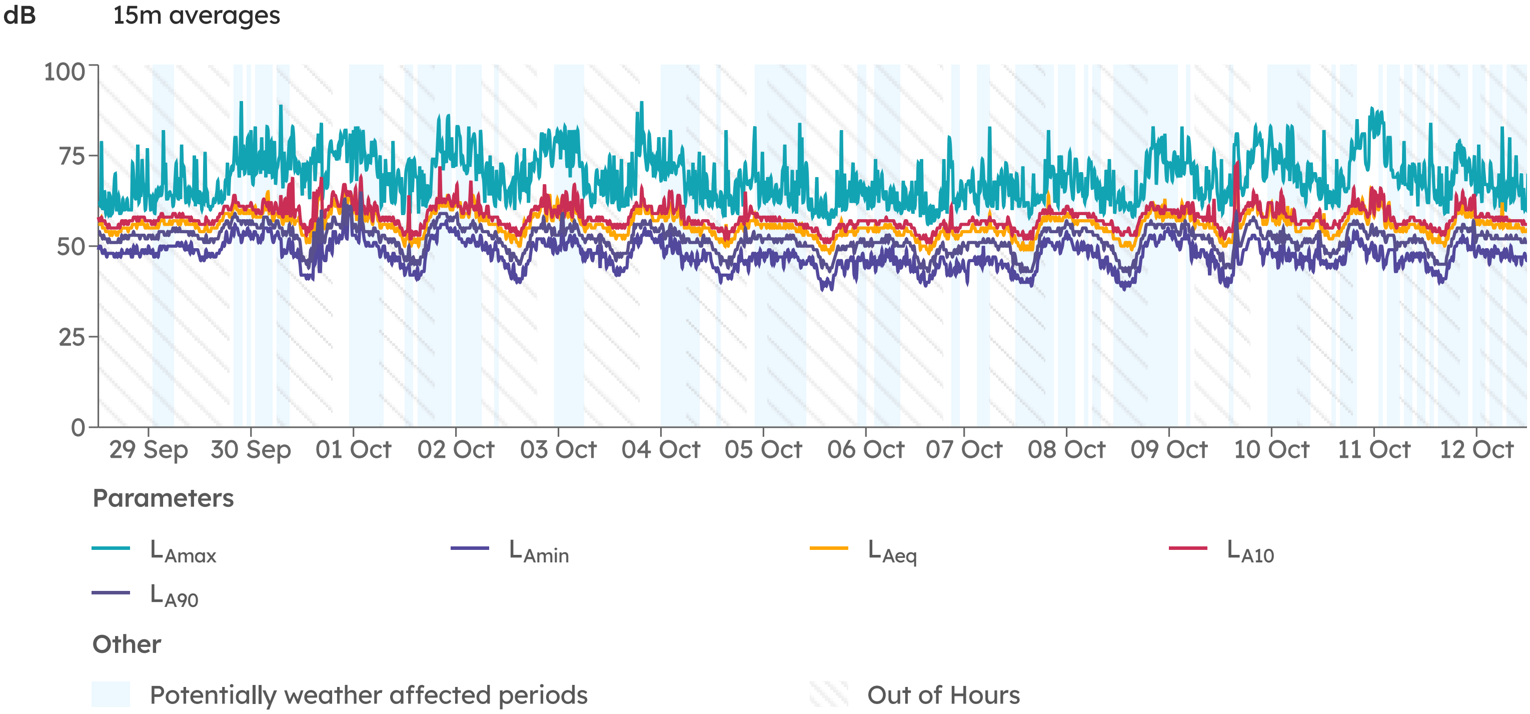
56 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive — **29 Sep 2024 - 12 Oct 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

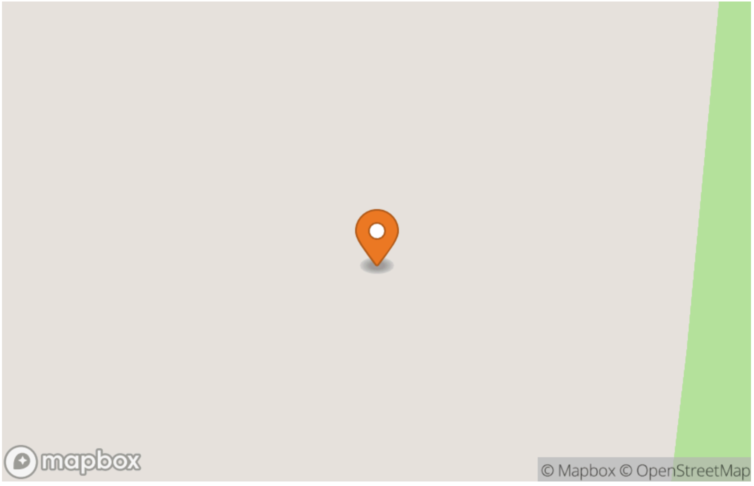
Gamuda Laing O'Rourke

Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 13Oct24_26Oct24 Clyde Dive

Monitoring Devices

Date Range	13 Oct 2024 - 26 Oct 2024
Device Serial	**Monitoring Points**
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

61 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

55 dB — NIGHT L_{Aeq}

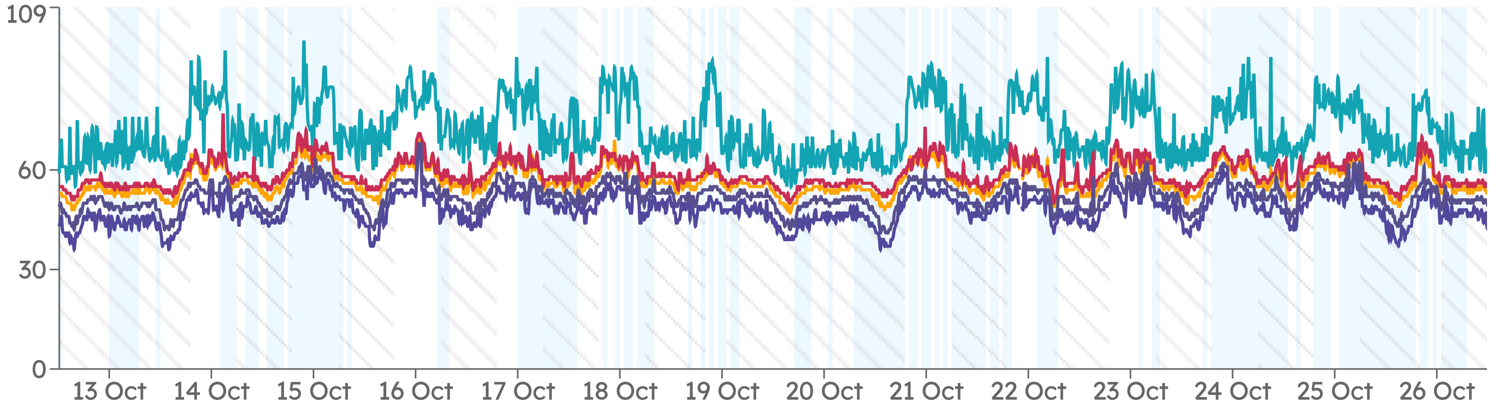
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive **13 Oct 2024 - 26 Oct 2024**

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

SiteHive

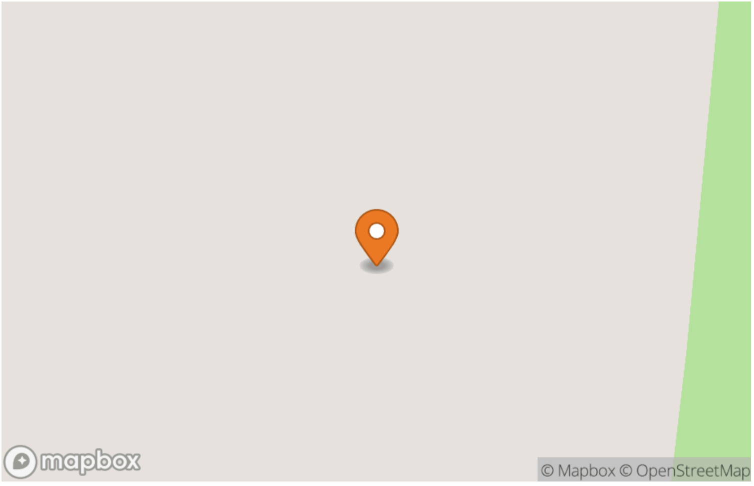
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 27Oct24_9Nov24 Clyde Dive

Monitoring Devices

Date Range 27 Oct 2024 - 09 Nov 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

59 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

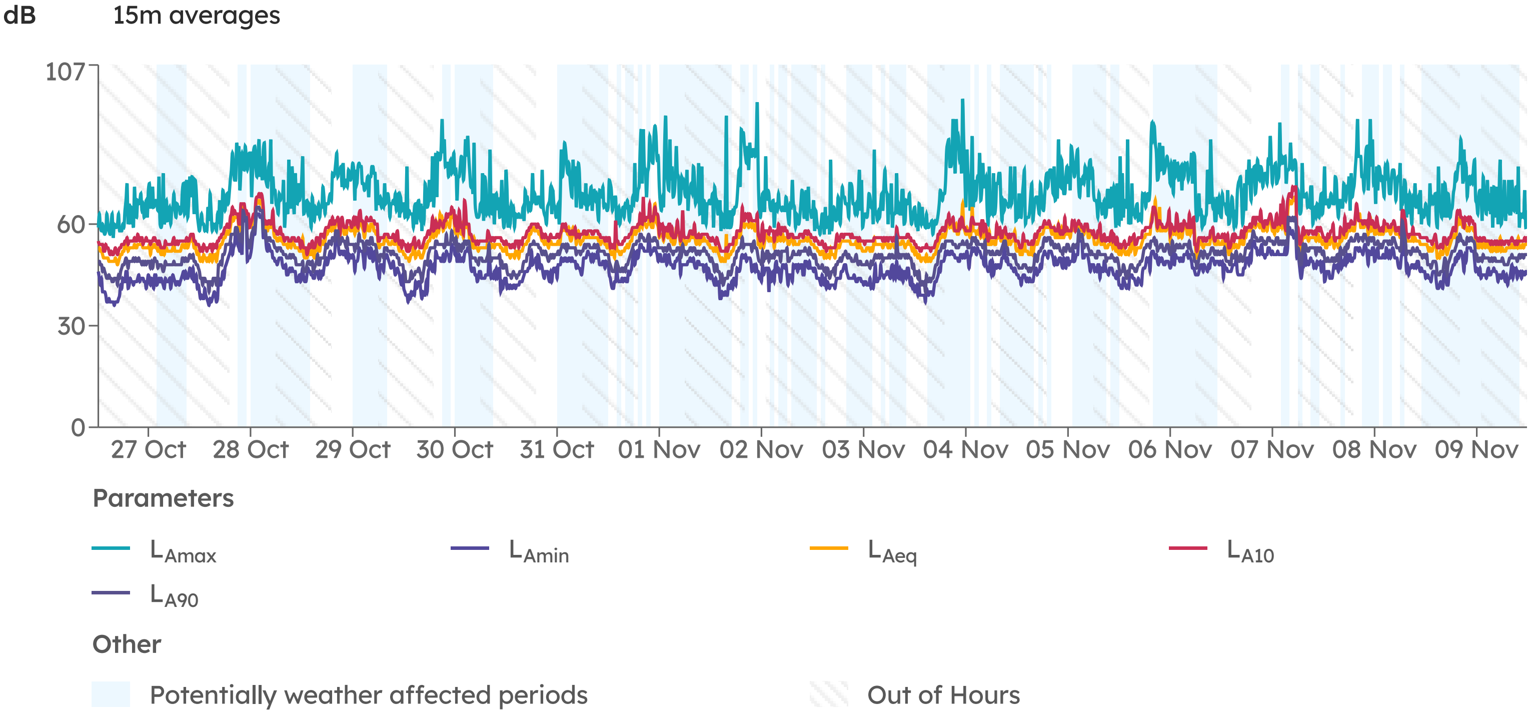
54 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive — **27 Oct 2024 - 09 Nov 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

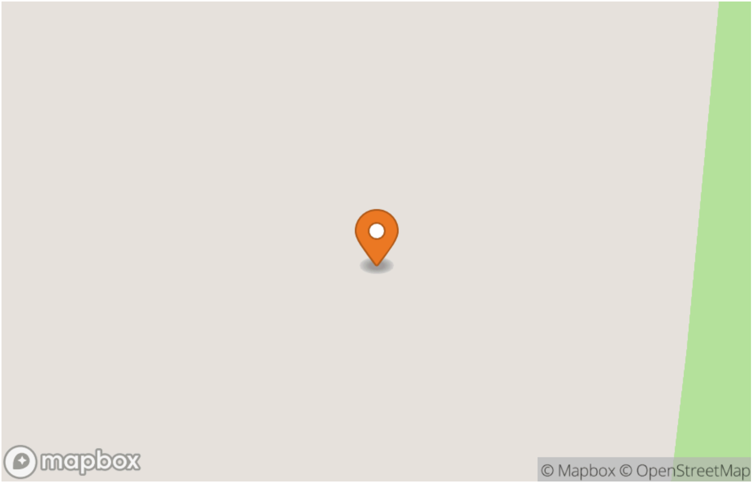
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 10Nov24_23Nov24 Clyde Dive

Monitoring Devices

Date Range 10 Nov 2024 - 23 Nov 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

60 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

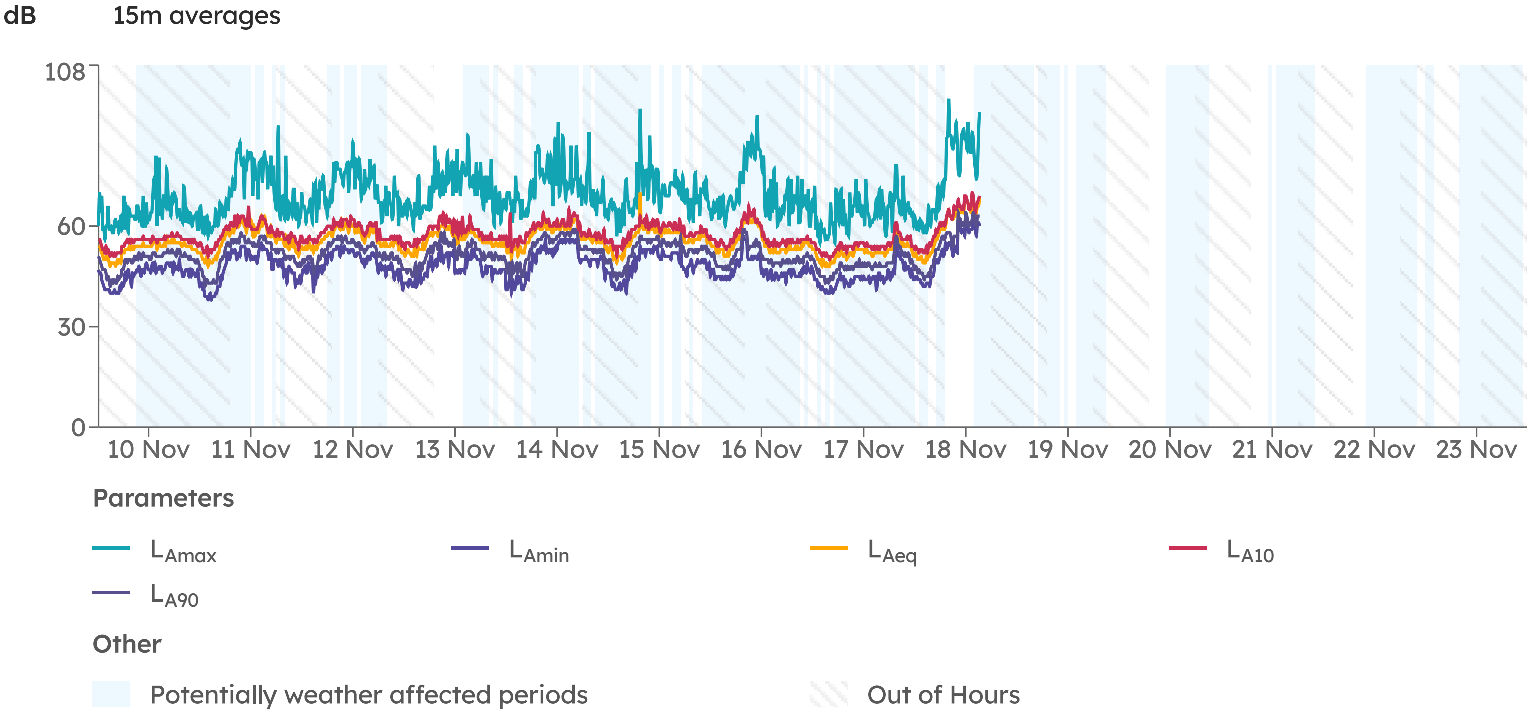
54 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Central Hive 10 Nov 2024 - 23 Nov 2024



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000103	Central Hive	SiteHive Hexanode	-	-

Gamuda Laing O'Rourke

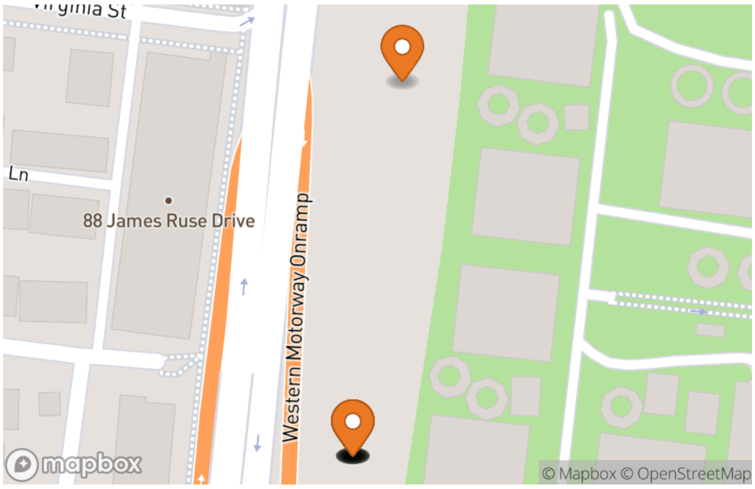
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 24Nov24_7Dec24 Clyde Dive

Monitoring Devices

Date Range 24 Nov 2024 - 07 Dec 2024

Device Serial	Monitoring Points
HEX-000045	-
HEX-000103	Central Hive
HEX-000378	-
HEX-000725	Southern Hive



Noise Monitoring Statistics

Southern Hive

69 dB — DAY L_{Aeq}

69 dB — EVENING L_{Aeq}

67 dB — NIGHT L_{Aeq}

Average value across selected time period

Central Hive

-- dB — DAY L_{Aeq}

-- dB — EVENING L_{Aeq}

-- dB — NIGHT L_{Aeq}

Average value across selected time period

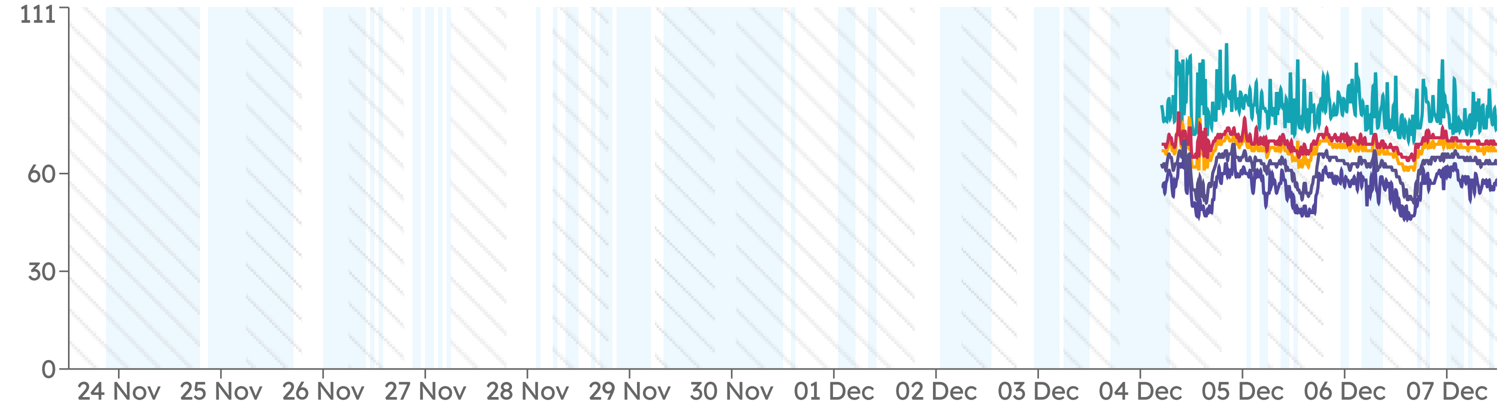
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Southern Hive

24 Nov 2024 - 07 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

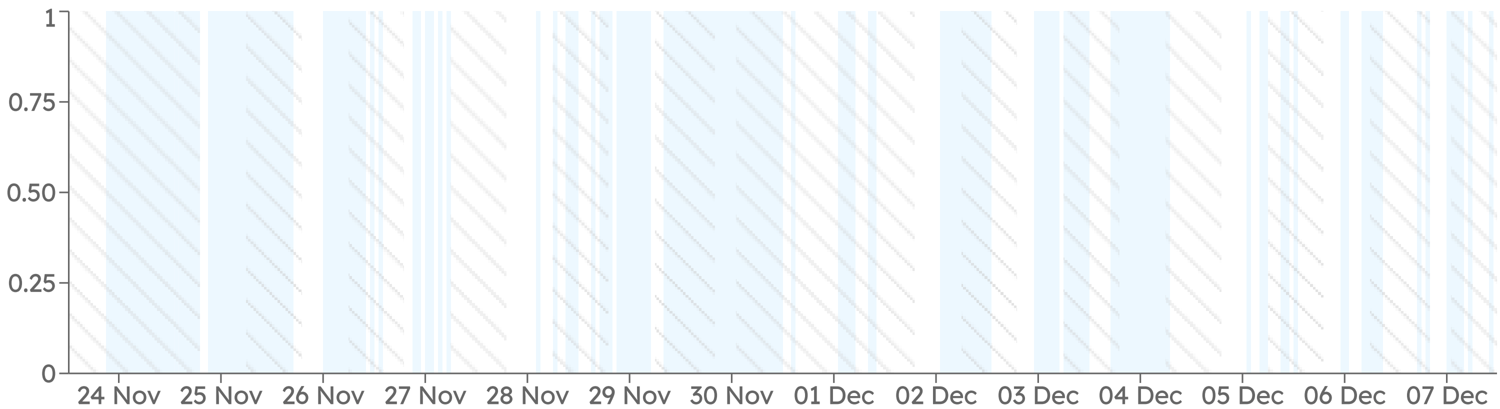
Other

Potentially weather affected periods Out of Hours

Central Hive

24 Nov 2024 - 07 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000045	-	SiteHive Hexanode	29 Nov 2023	29 Nov 2025
HEX-000103	Central Hive	SiteHive Hexanode	-	-
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000725	Southern Hive	SiteHive Hexanode	24 Oct 2024	24 Oct 2026

Gamuda Laing O'Rourke

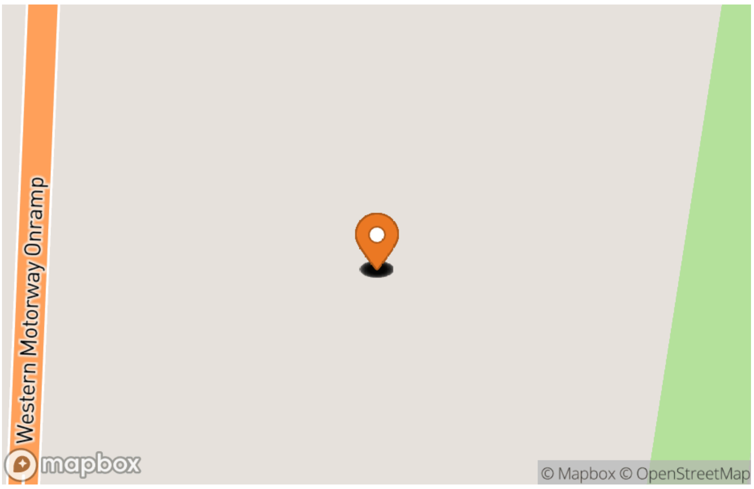
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 8Dec24_21Dec24 Clyde Dive

Monitoring Devices

Date Range 08 Dec 2024 - 21 Dec 2024

Device Serial	Monitoring Points
HEX-000045	-
HEX-000103	-
HEX-000378	-
HEX-000725	Southern Hive



Noise Monitoring Statistics

Southern Hive

Value	Period	Metric
69 dB	DAY	L_{Aeq}
67 dB	EVENING	L_{Aeq}
66 dB	NIGHT	L_{Aeq}

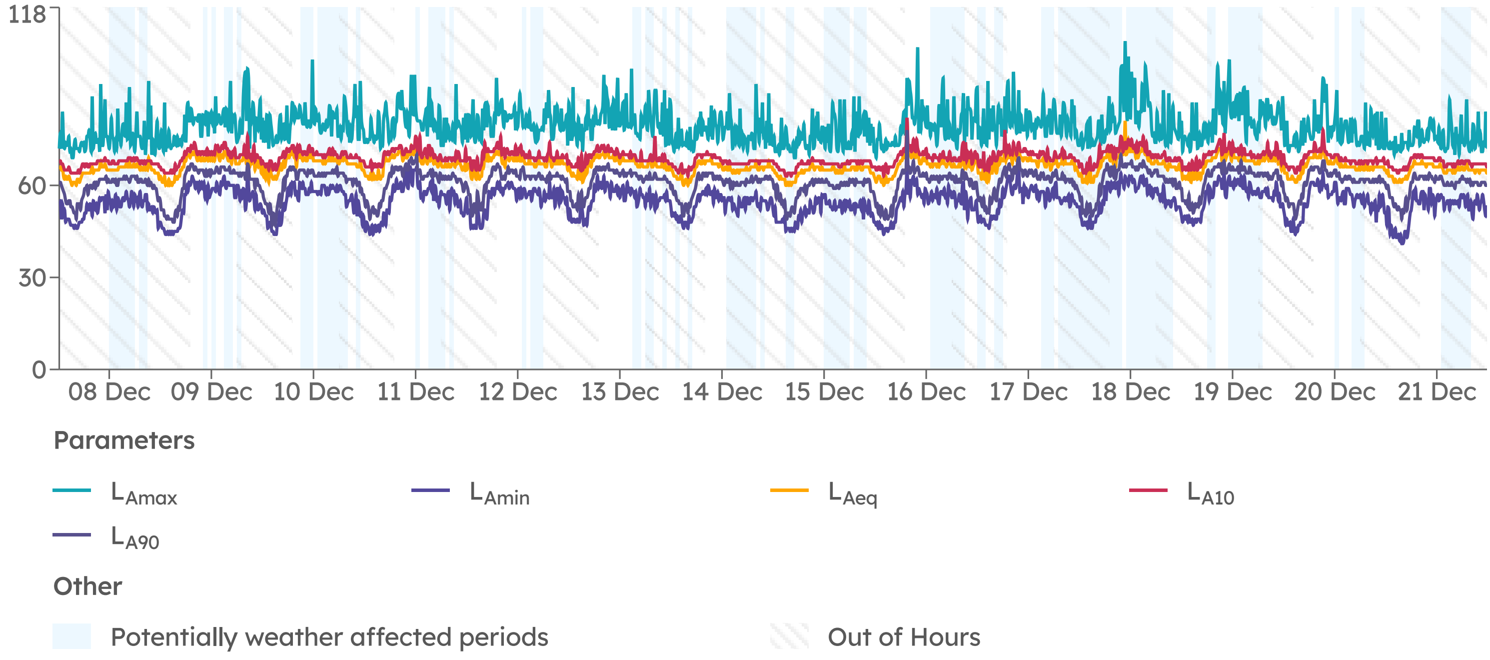
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Southern Hive **08 Dec 2024 - 21 Dec 2024**

dB 15m averages



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000045	-	SiteHive Hexanode	29 Nov 2023	29 Nov 2025
HEX-000103	-	SiteHive Hexanode	-	-
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000725	Southern Hive	SiteHive Hexanode	24 Oct 2024	24 Oct 2026

Gamuda Laing O'Rourke

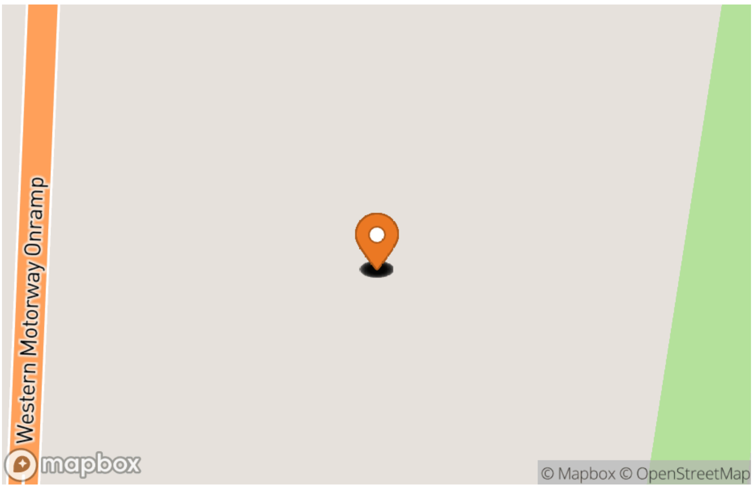
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 22Dec24_4Jan24 Clyde Dive

Monitoring Devices

Date Range 22 Dec 2024 - 04 Jan 2025

Device Serial	Monitoring Points
HEX-000045	-
HEX-000103	-
HEX-000378	-
HEX-000725	Southern Hive



Noise Monitoring Statistics

Southern Hive

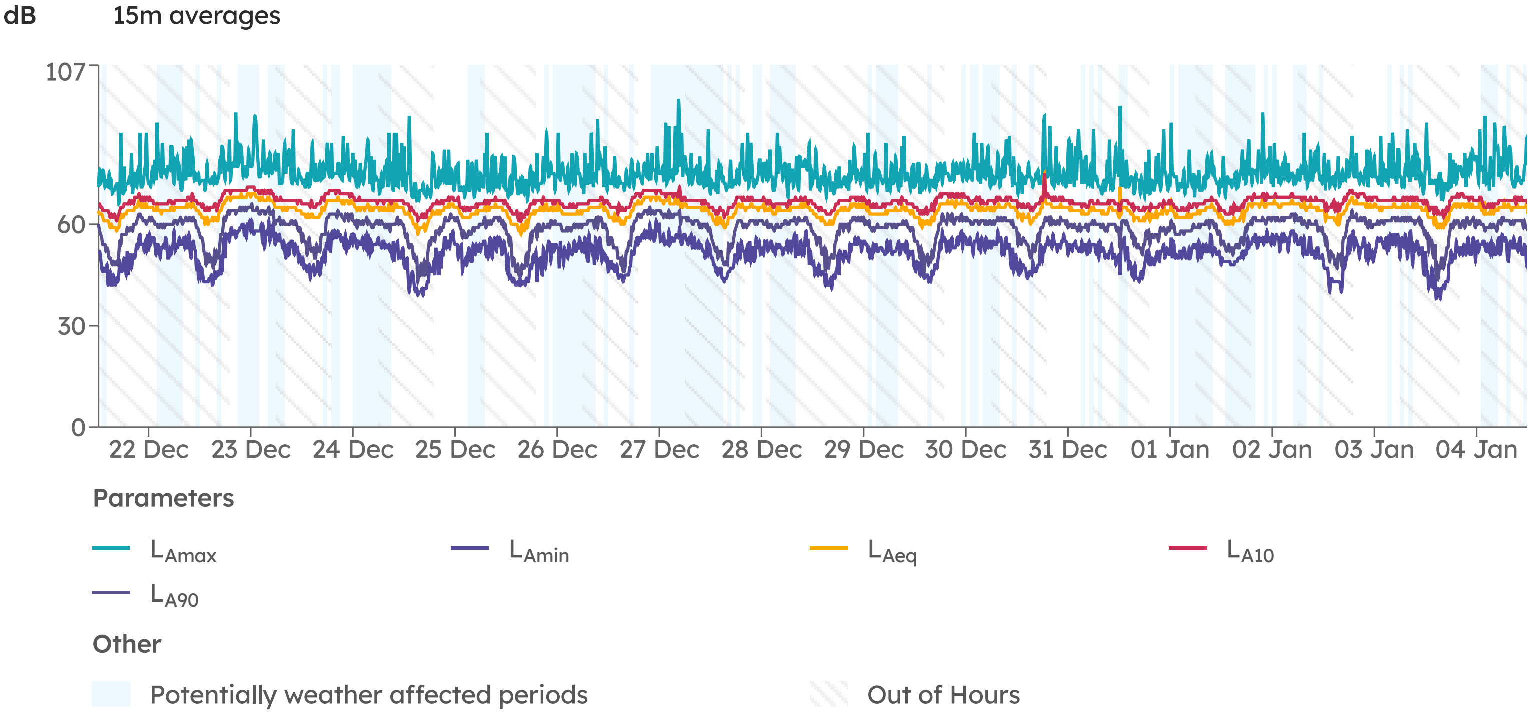
Value	Period	Metric
65 dB	DAY	L_{Aeq}
65 dB	EVENING	L_{Aeq}
63 dB	NIGHT	L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Southern Hive — **22 Dec 2024 - 04 Jan 2025**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000045	-	SiteHive Hexanode	29 Nov 2023	29 Nov 2025
HEX-000103	-	SiteHive Hexanode	-	-
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000725	Southern Hive	SiteHive Hexanode	24 Oct 2024	24 Oct 2026

Gamuda Laing O'Rourke

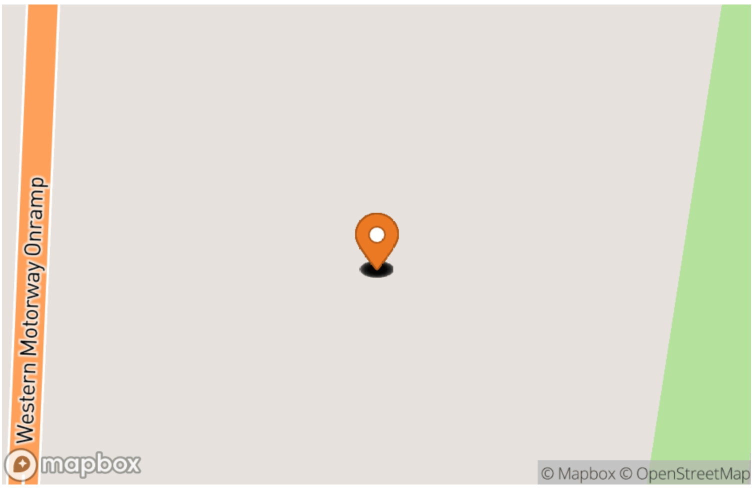
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 5Jan25_20Jan Clyde Dive

Monitoring Devices

Date Range 05 Jan 2025 - 20 Jan 2025

Device Serial	Monitoring Points
HEX-000045	-
HEX-000103	-
HEX-000378	-
HEX-000725	Southern Hive



Noise Monitoring Statistics

Southern Hive

69 dB — DAY L_{Aeq}

67 dB — EVENING L_{Aeq}

66 dB — NIGHT L_{Aeq}

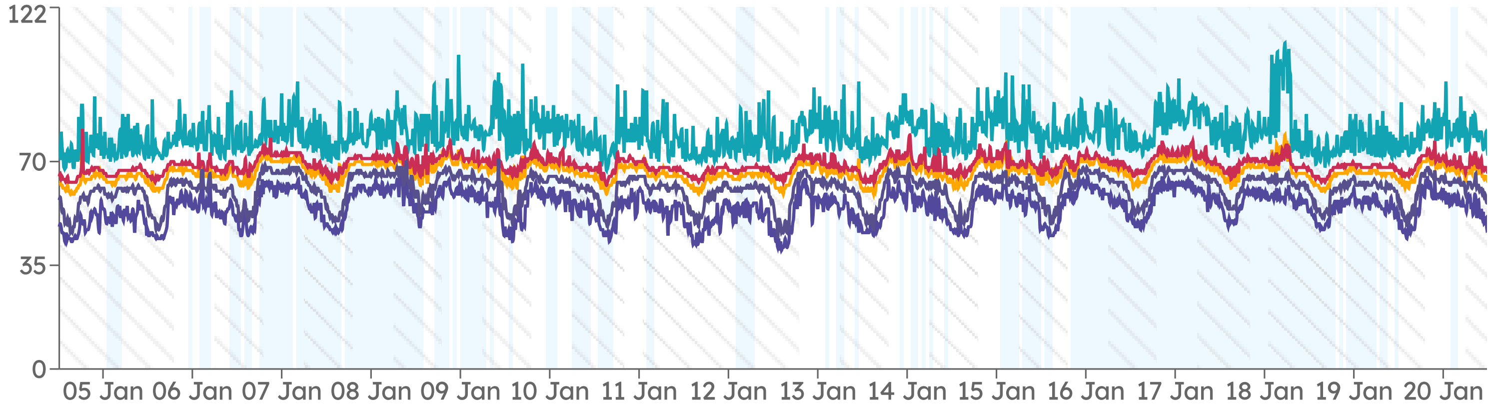
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Southern Hive 05 Jan 2025 - 20 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000045	-	SiteHive Hexanode	29 Nov 2023	29 Nov 2025
HEX-000103	-	SiteHive Hexanode	-	-
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000725	Southern Hive	SiteHive Hexanode	24 Oct 2024	24 Oct 2026

Gamuda Laing O'Rourke

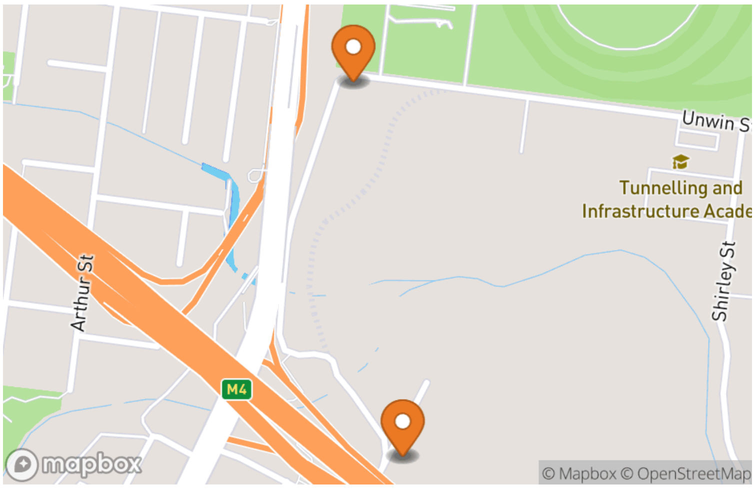
Sydney Metro West WTP MSF

Unattended Noise Monitoring 20Jul24_3Aug24 Clyde MSF

Monitoring Devices

Date Range 20 Jul 2024 - 03 Aug 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period	Metric
63 dB	DAY	L_{Aeq}
58 dB	EVENING	L_{Aeq}
58 dB	NIGHT	L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period	Metric
-- dB	DAY	L_{Aeq}
-- dB	EVENING	L_{Aeq}
-- dB	NIGHT	L_{Aeq}

Average value across selected time period

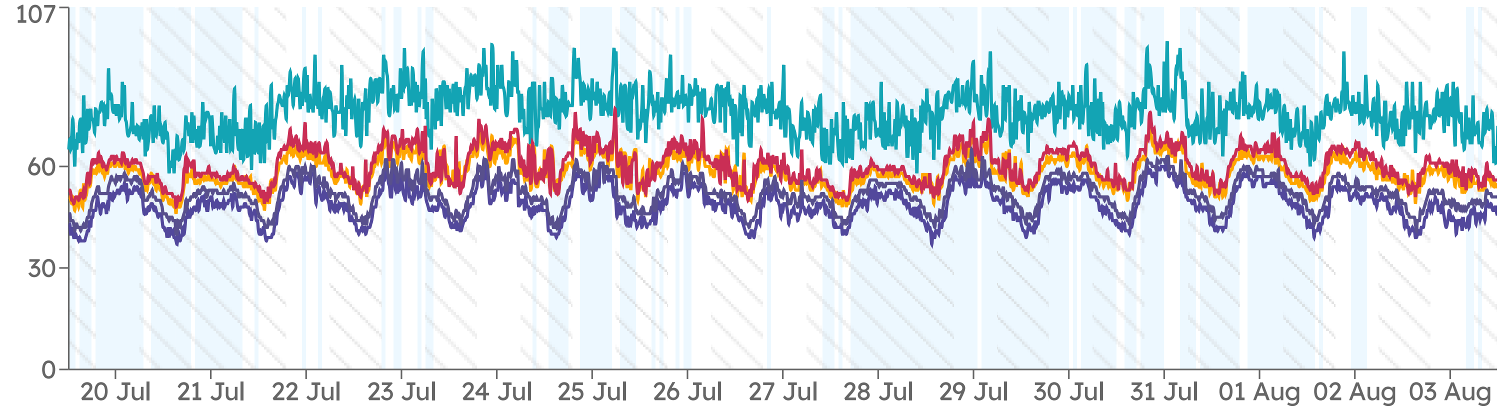
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

20 Jul 2024 - 03 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

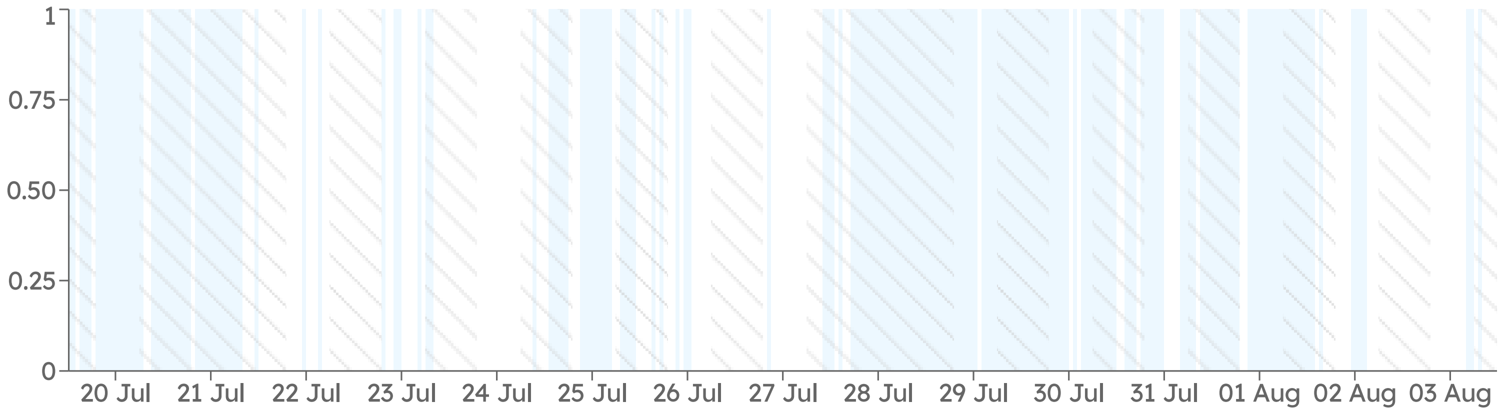
Other

Potentially weather affected periods Out of Hours

Wentworth Street, Clyde

20 Jul 2024 - 03 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

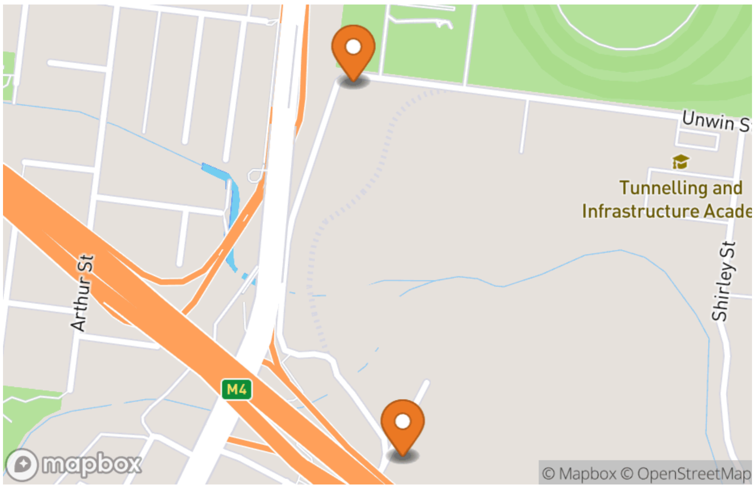
Sydney Metro West WTP MSF

Unattended Noise Monitoring 4Aug24_17Aug24 Clyde MSF

Monitoring Devices

Date Range 04 Aug 2024 - 17 Aug 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
62 dB	DAY L_{Aeq}
59 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
-- dB	DAY L_{Aeq}
-- dB	EVENING L_{Aeq}
-- dB	NIGHT L_{Aeq}

Average value across selected time period

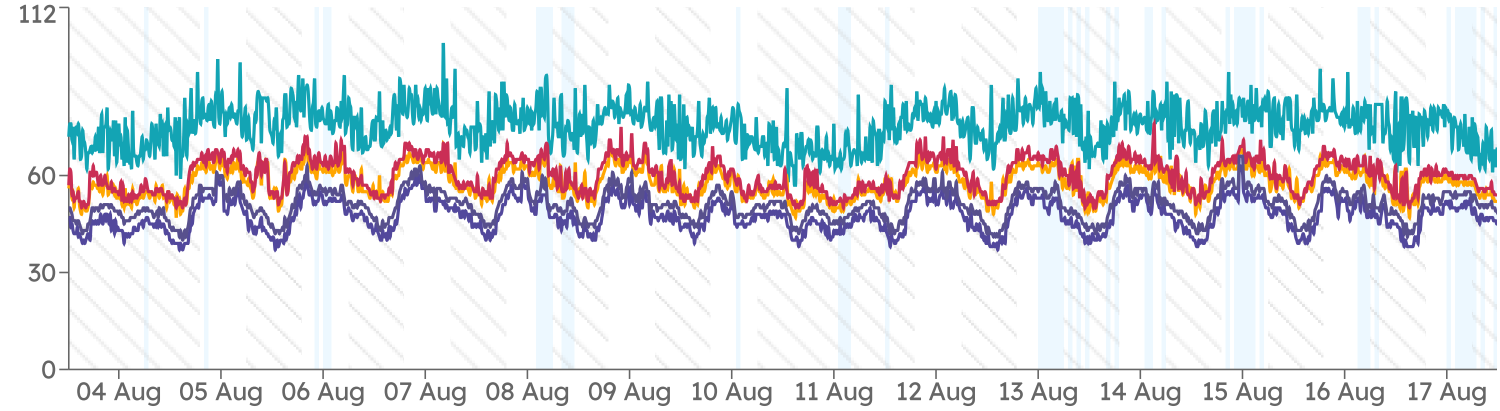
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

04 Aug 2024 - 17 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

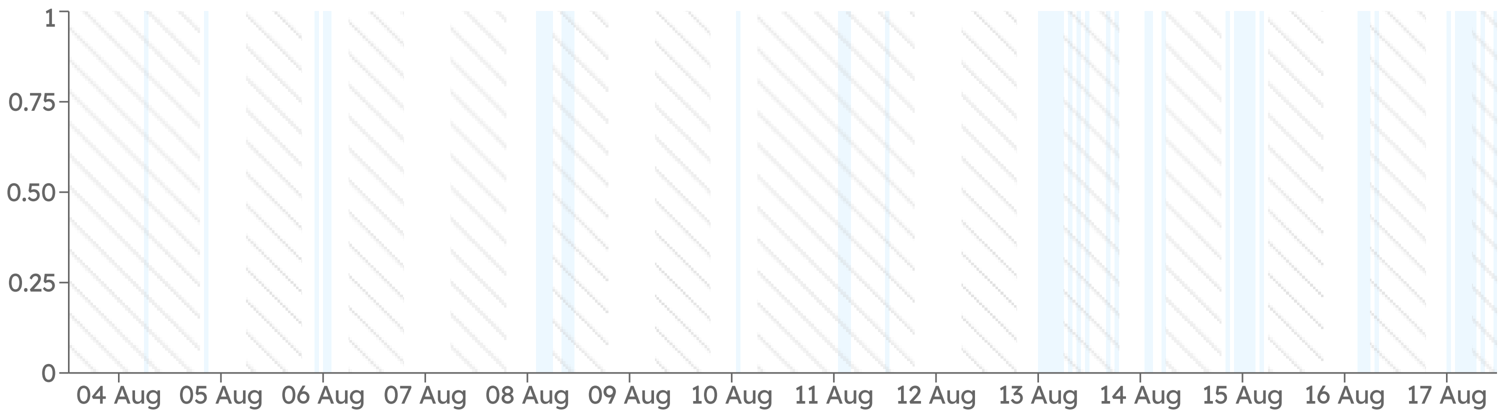
Other

Potentially weather affected periods Out of Hours

Wentworth Street, Clyde

04 Aug 2024 - 17 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

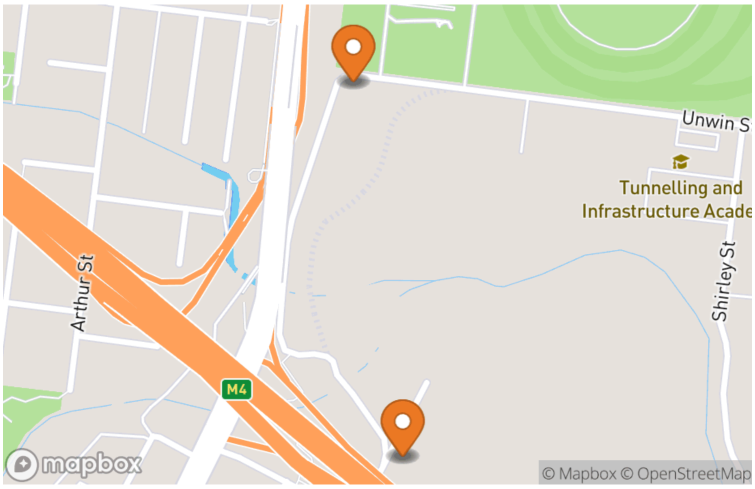
Sydney Metro West WTP MSF

Unattended Noise Monitoring 18Aug24_31Aug24 Clyde MSF

Monitoring Devices

Date Range 18 Aug 2024 - 31 Aug 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
64 dB	DAY L_{Aeq}
57 dB	EVENING L_{Aeq}
57 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
-- dB	DAY L_{Aeq}
-- dB	EVENING L_{Aeq}
-- dB	NIGHT L_{Aeq}

Average value across selected time period

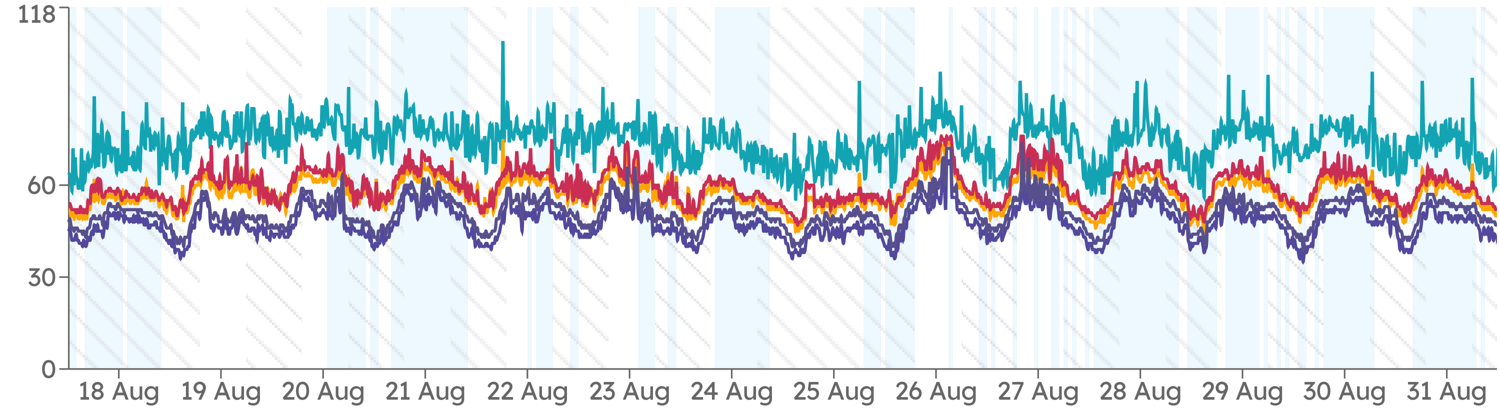
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

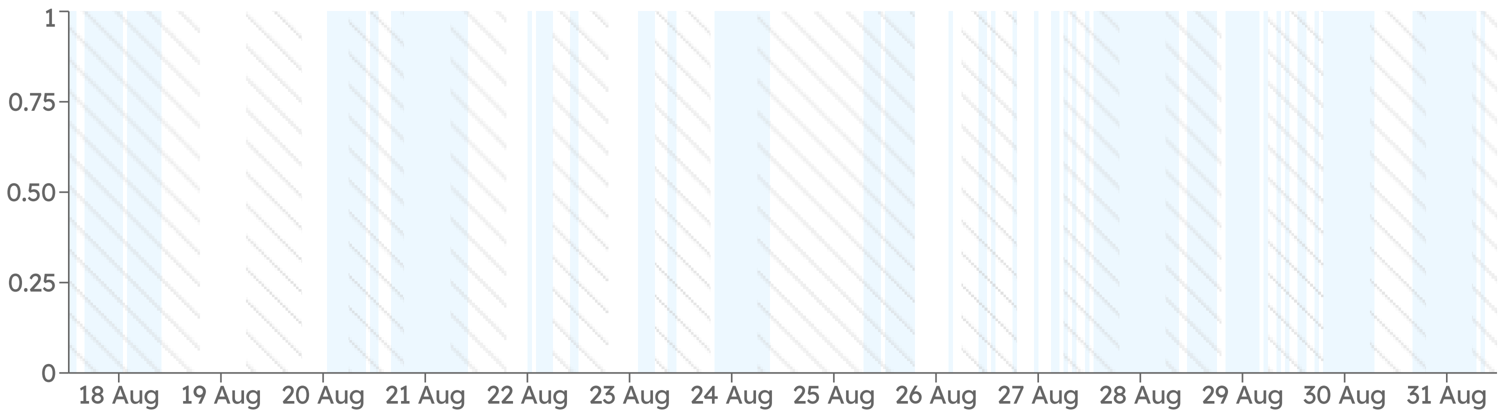
Potentially weather affected periods

Out of Hours

Wentworth Street, Clyde

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

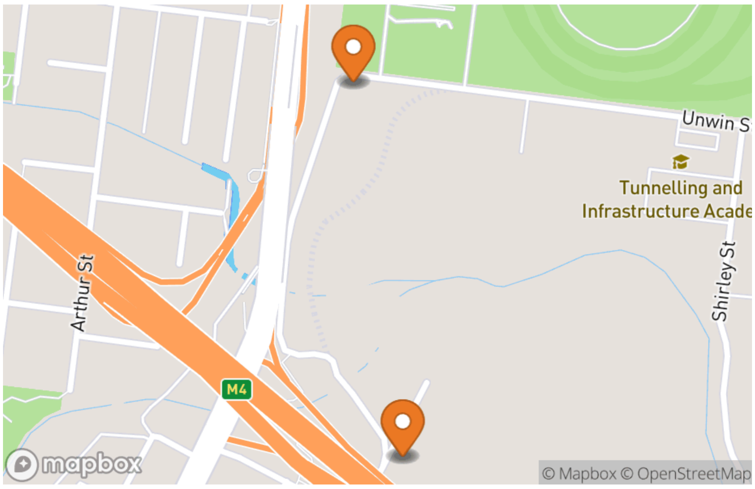
Sydney Metro West WTP MSF

Unattended Noise Monitoring 1Sep24_14Sep24 Clyde MSF

Monitoring Devices

Date Range 01 Sep 2024 - 14 Sep 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
64 dB	DAY L_{Aeq}
56 dB	EVENING L_{Aeq}
56 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
-- dB	DAY L_{Aeq}
-- dB	EVENING L_{Aeq}
-- dB	NIGHT L_{Aeq}

Average value across selected time period

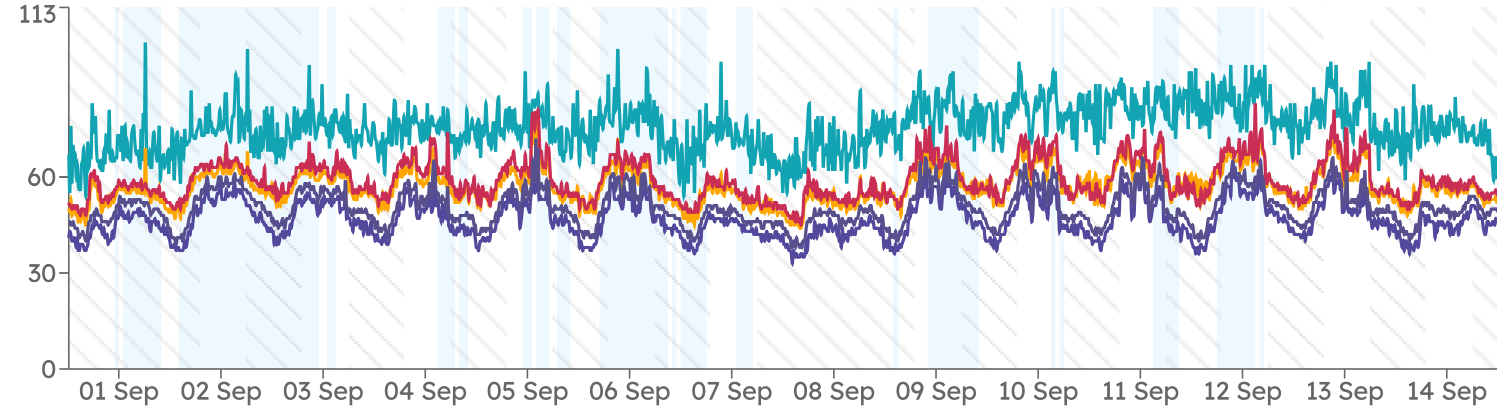
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

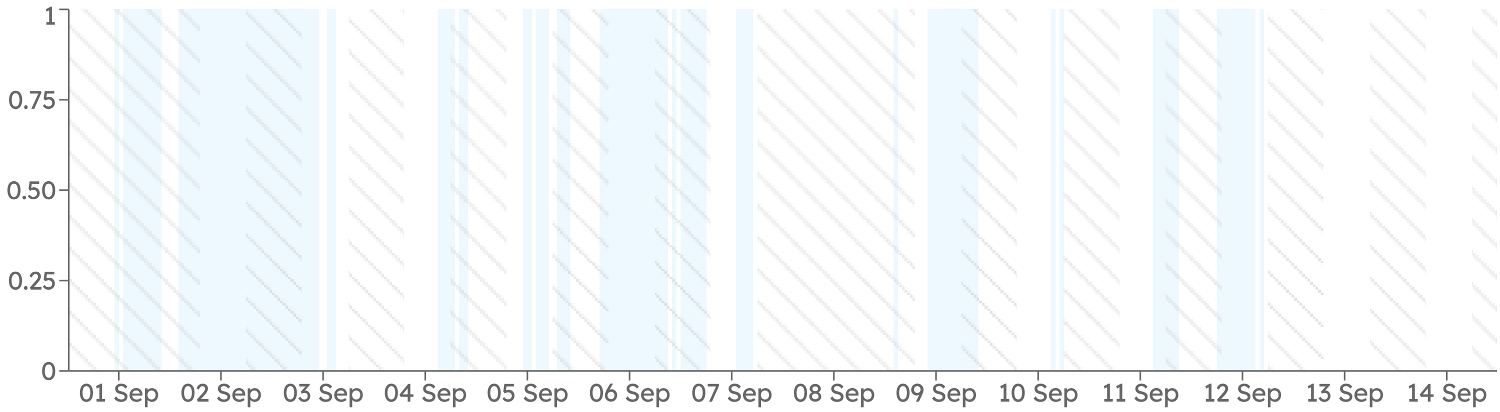
Other

Potentially weather affected periods Out of Hours

Wentworth Street, Clyde

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

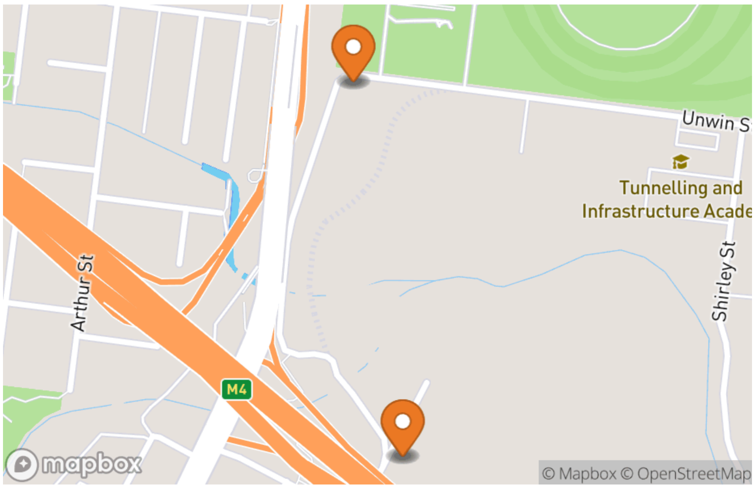
Sydney Metro West WTP MSF

Unattended Noise Monitoring 15Sep24_28Sep24 Clyde MSF

Monitoring Devices

Date Range 15 Sep 2024 - 28 Sep 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period	Metric
66 dB	DAY	L_{Aeq}
60 dB	EVENING	L_{Aeq}
60 dB	NIGHT	L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period	Metric
-- dB	DAY	L_{Aeq}
-- dB	EVENING	L_{Aeq}
-- dB	NIGHT	L_{Aeq}

Average value across selected time period

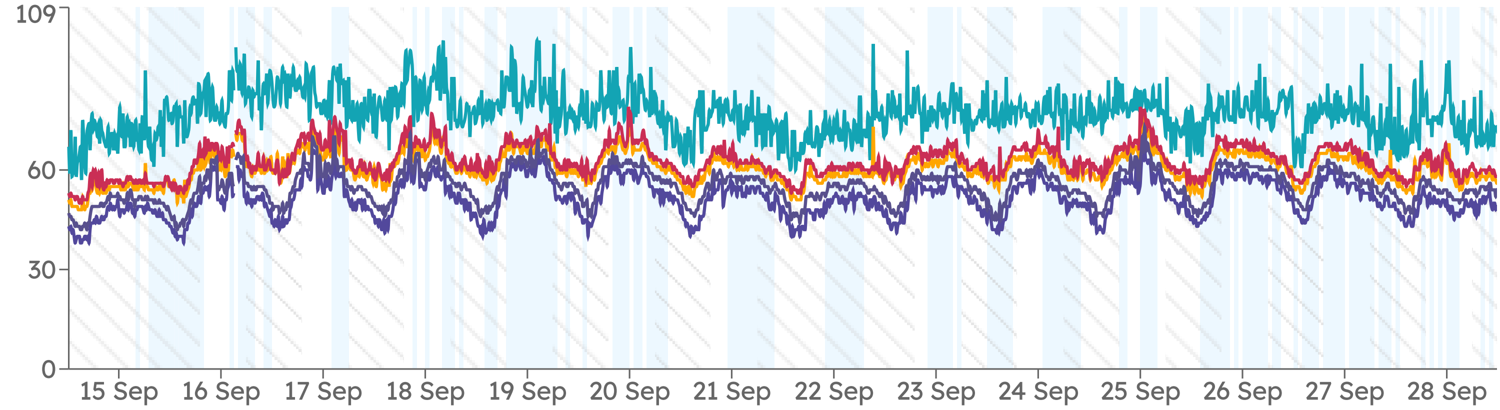
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

15 Sep 2024 - 28 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

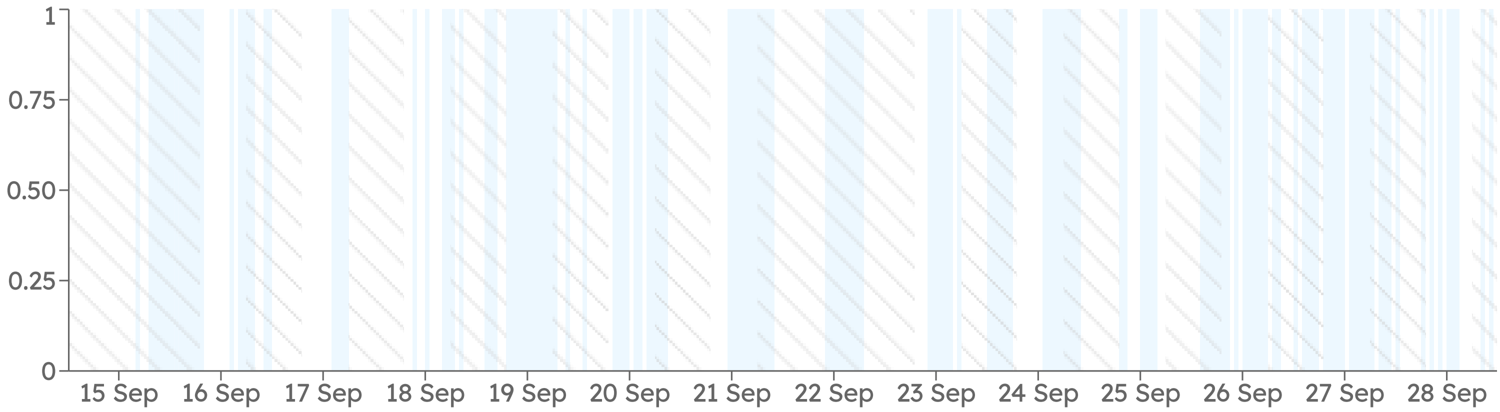
Other

Potentially weather affected periods Out of Hours

Wentworth Street, Clyde

15 Sep 2024 - 28 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

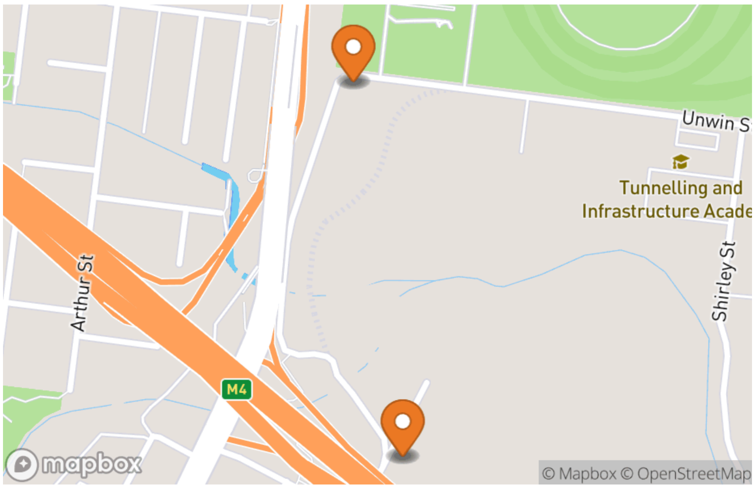
Sydney Metro West WTP MSF

Unattended Noise Monitoring 29Sep24_12Oct24 Clyde MSF

Monitoring Devices

Date Range 29 Sep 2024 - 12 Oct 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
64 dB	DAY L_{Aeq}
58 dB	EVENING L_{Aeq}
59 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
-- dB	DAY L_{Aeq}
-- dB	EVENING L_{Aeq}
-- dB	NIGHT L_{Aeq}

Average value across selected time period

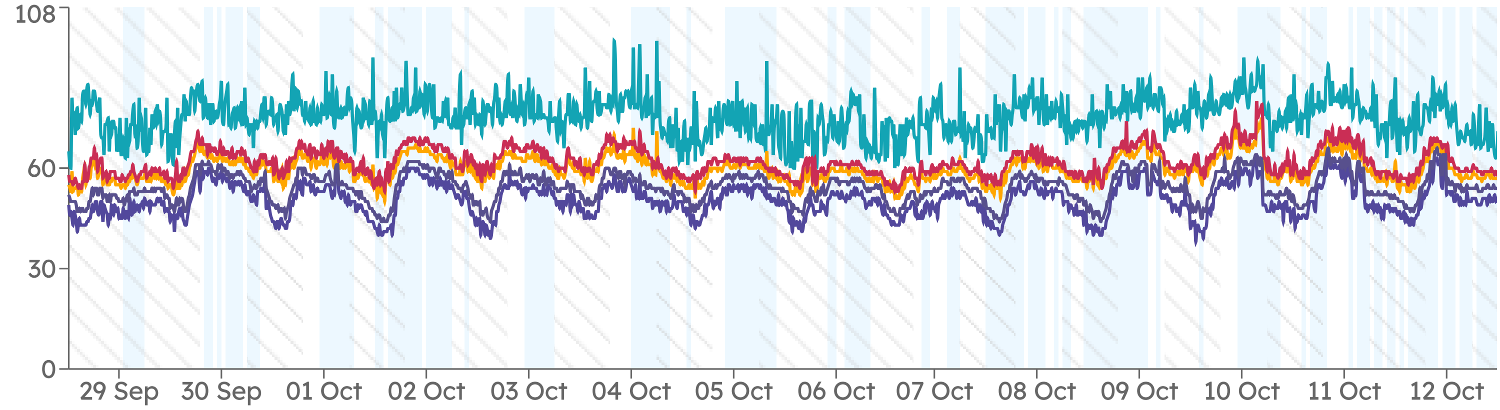
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

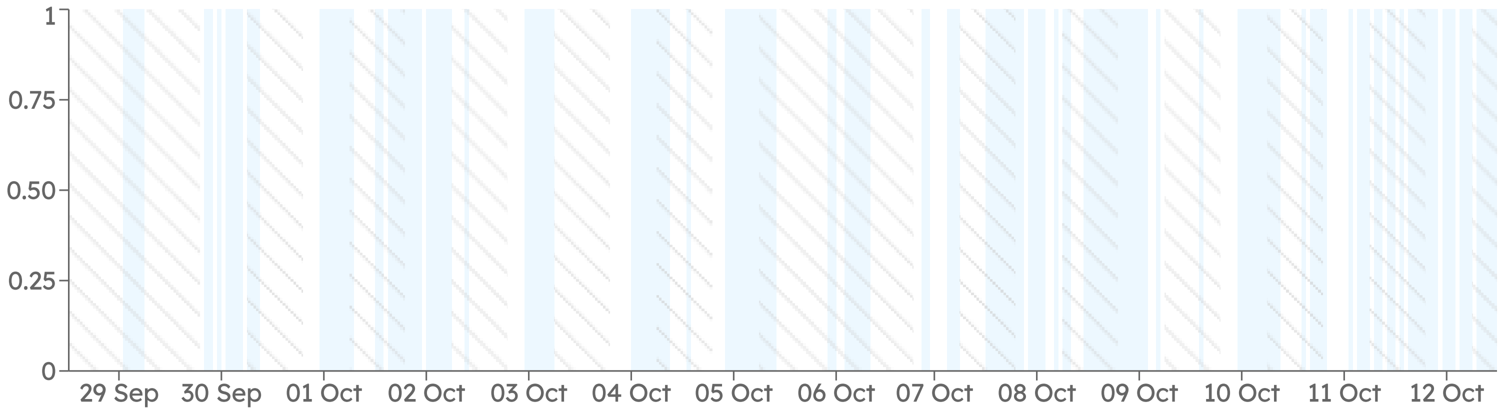
Potentially weather affected periods

Out of Hours

Wentworth Street, Clyde

29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

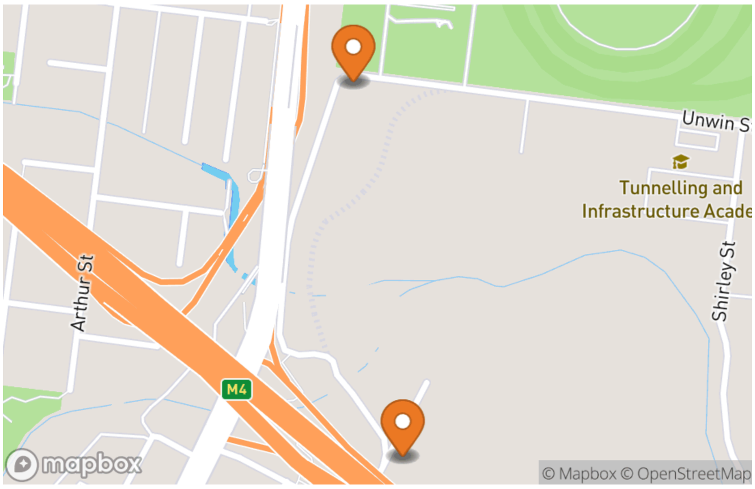
Sydney Metro West WTP MSF

Unattended Noise Monitoring 13Oct24_26Oct24 Clyde MSF

Monitoring Devices

Date Range 13 Oct 2024 - 26 Oct 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
65 dB	DAY L_{Aeq}
58 dB	EVENING L_{Aeq}
59 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
-- dB	DAY L_{Aeq}
-- dB	EVENING L_{Aeq}
-- dB	NIGHT L_{Aeq}

Average value across selected time period

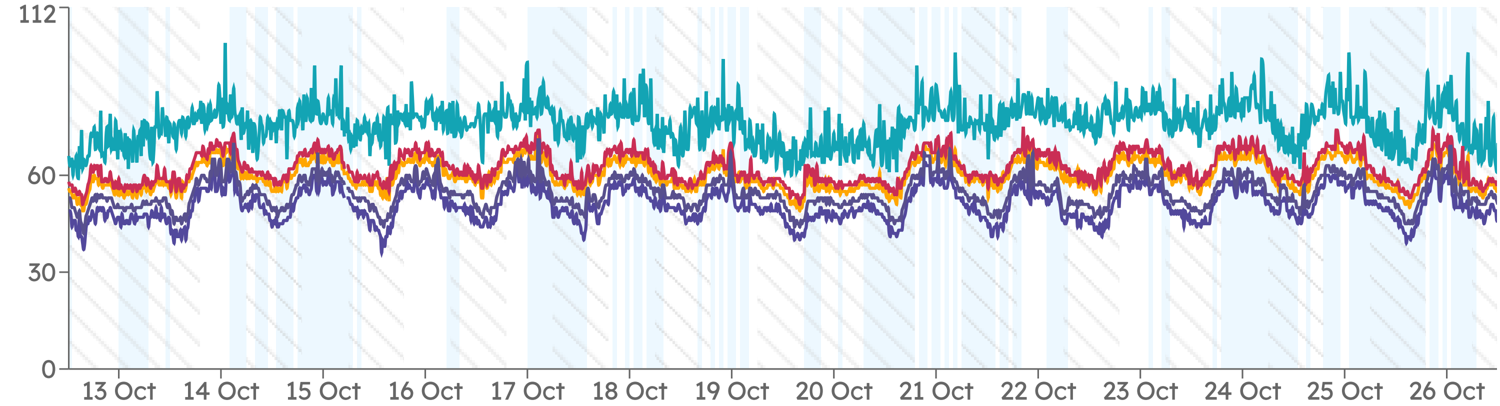
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

13 Oct 2024 - 26 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

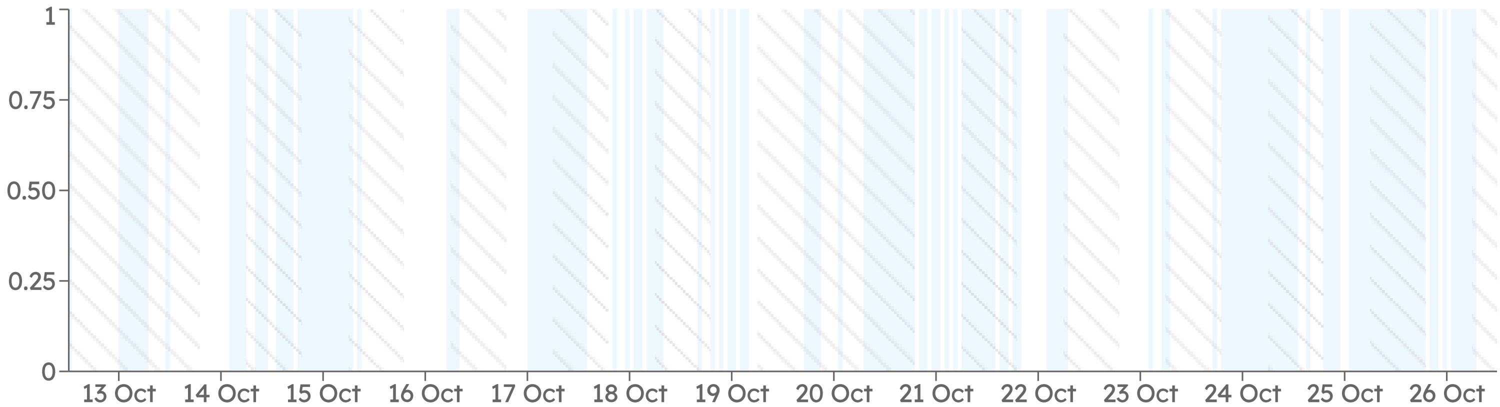
Potentially weather affected periods

Out of Hours

Wentworth Street, Clyde

13 Oct 2024 - 26 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

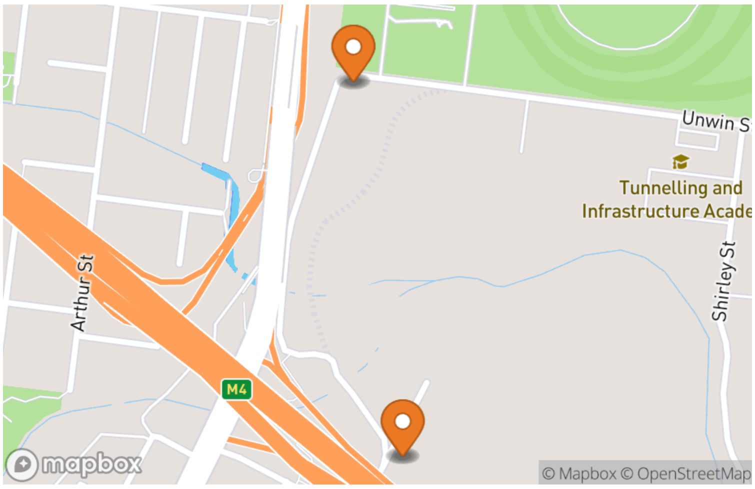
Sydney Metro West WTP MSF

Unattended Noise Monitoring 27Oct24_9Nov24 Clyde MSF

Monitoring Devices

Date Range 27 Oct 2024 - 09 Nov 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period	Metric
64 dB	DAY	L_{Aeq}
58 dB	EVENING	L_{Aeq}
58 dB	NIGHT	L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period	Metric
-- dB	DAY	L_{Aeq}
-- dB	EVENING	L_{Aeq}
-- dB	NIGHT	L_{Aeq}

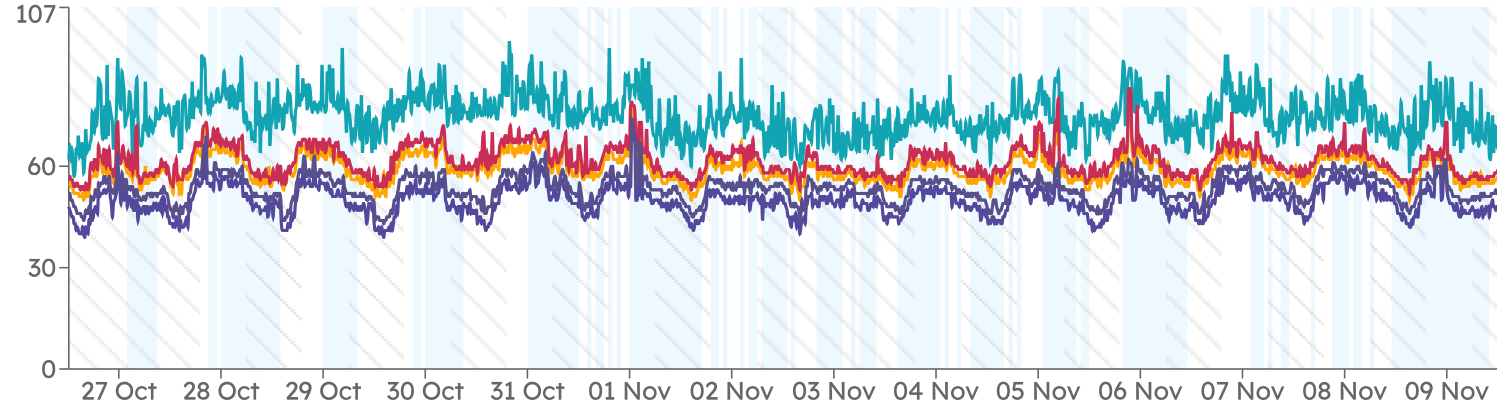
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill 27 Oct 2024 - 09 Nov 2024

dB 15m averages



Parameters

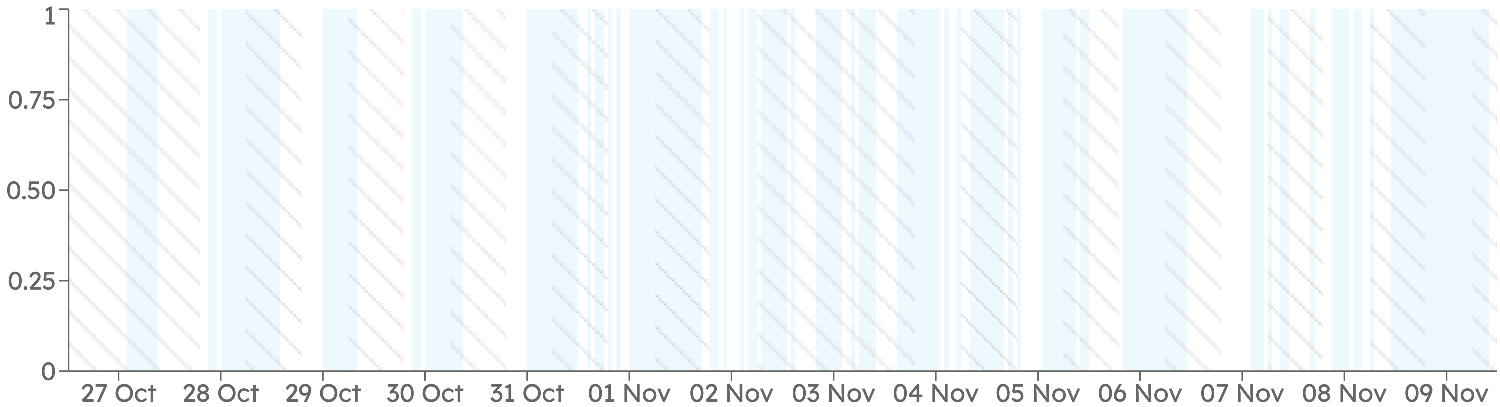
L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Wentworth Street, Clyde 27 Oct 2024 - 09 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

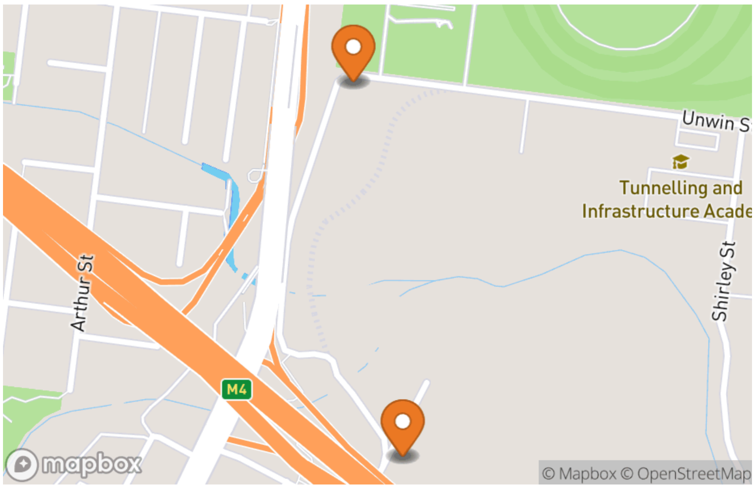
Sydney Metro West WTP MSF

Unattended Noise Monitoring 10Nov24_23Nov24 Clyde MSF

Monitoring Devices

Date Range 10 Nov 2024 - 23 Nov 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	-
HEX-000522	-



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
64 dB	DAY L_{Aeq}
57 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
-- dB	DAY L_{Aeq}
-- dB	EVENING L_{Aeq}
-- dB	NIGHT L_{Aeq}

Average value across selected time period

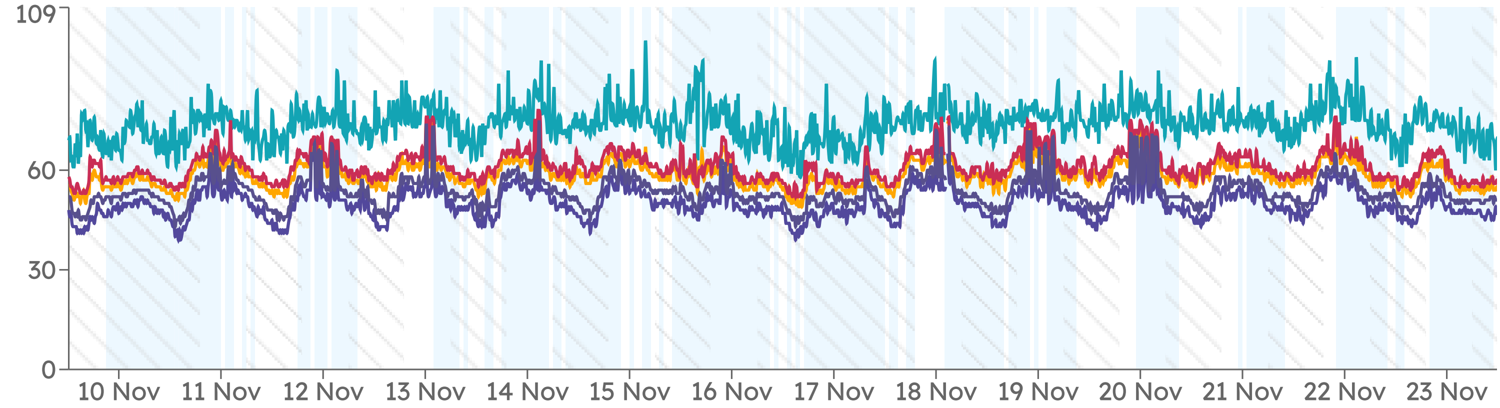
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

10 Nov 2024 - 23 Nov 2024

dB 15m averages



Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

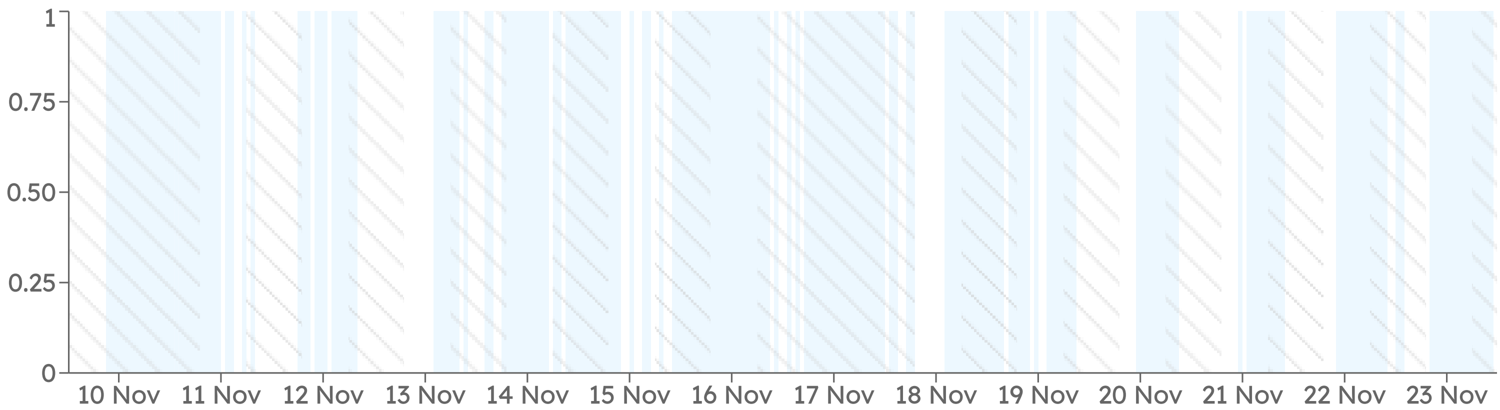
Other

- Potentially weather affected periods
- Out of Hours

Wentworth Street, Clyde

10 Nov 2024 - 23 Nov 2024

dB 15m averages



Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

Other

- Potentially weather affected periods
- Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	-	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	-	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

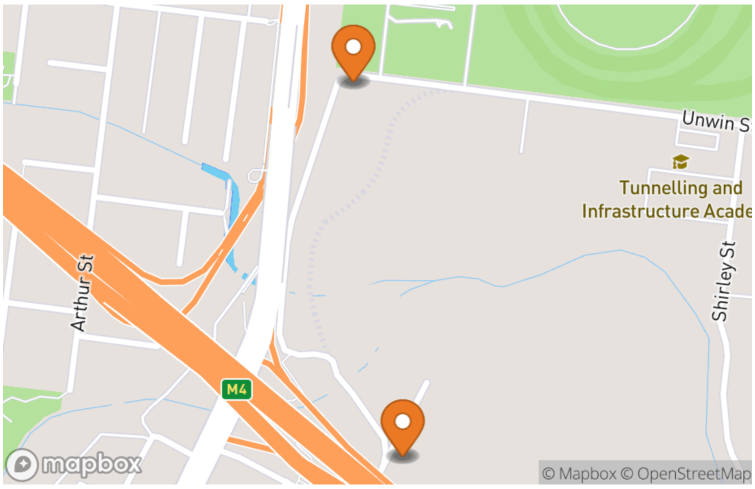
Sydney Metro West WTP MSF

Unattended Noise Monitoring 24Nov24_7Dec24 Clyde MSF

Monitoring Devices

Date Range 24 Nov 2024 - 07 Dec 2024

Device Serial	Monitoring Points
HEX-000378	Wentworth Street, Clyde
HEX-000025	Unwin Street, Rosehill
HEX-000236	Unwin Street, Rosehill
HEX-000522	Wentworth Street, Clyde



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period
64 dB	DAY L_{Aeq}
60 dB	EVENING L_{Aeq}
60 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period
66 dB	DAY L_{Aeq}
61 dB	EVENING L_{Aeq}
61 dB	NIGHT L_{Aeq}

Average value across selected time period

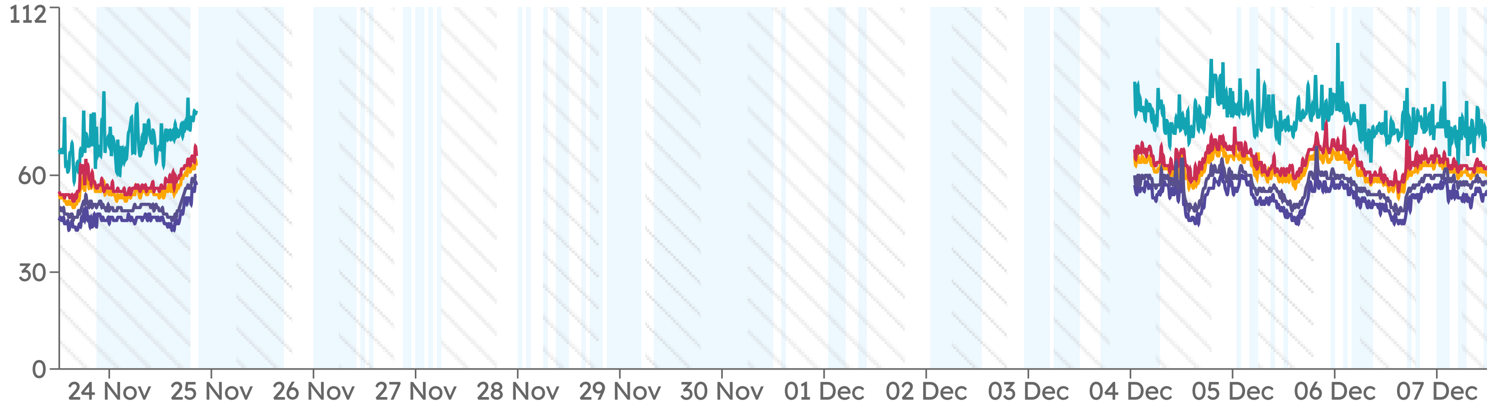
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

24 Nov 2024 - 07 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

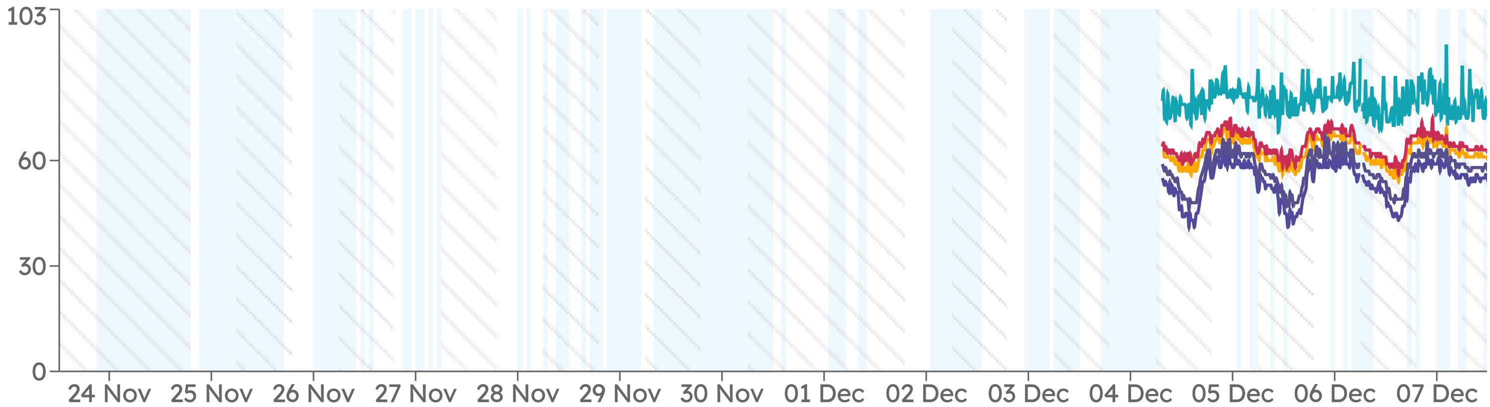
Potentially weather affected periods

Out of Hours

Wentworth Street, Clyde

24 Nov 2024 - 07 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	Wentworth Street, Clyde	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	Unwin Street, Rosehill	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	Unwin Street, Rosehill	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	Wentworth Street, Clyde	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

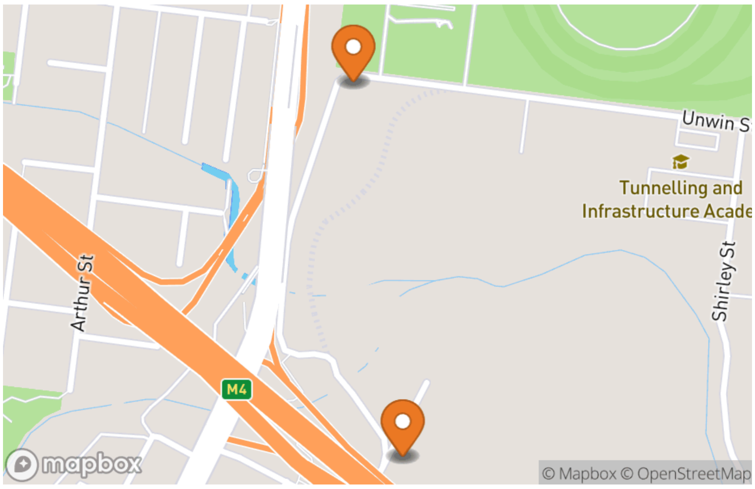
Sydney Metro West WTP MSF

Unattended Noise Monitoring 8Dec24_21Dec24 Clyde MSF

Monitoring Devices

Date Range 08 Dec 2024 - 21 Dec 2024

Device Serial	Monitoring Points
HEX-000378	-
HEX-000025	-
HEX-000236	Unwin Street, Rosehill
HEX-000522	Wentworth Street, Clyde



Noise Monitoring Statistics

Unwin Street, Rosehill

Value	Period	Metric
67 dB	DAY	L_{Aeq}
61 dB	EVENING	L_{Aeq}
60 dB	NIGHT	L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

Value	Period	Metric
65 dB	DAY	L_{Aeq}
62 dB	EVENING	L_{Aeq}
61 dB	NIGHT	L_{Aeq}

Average value across selected time period

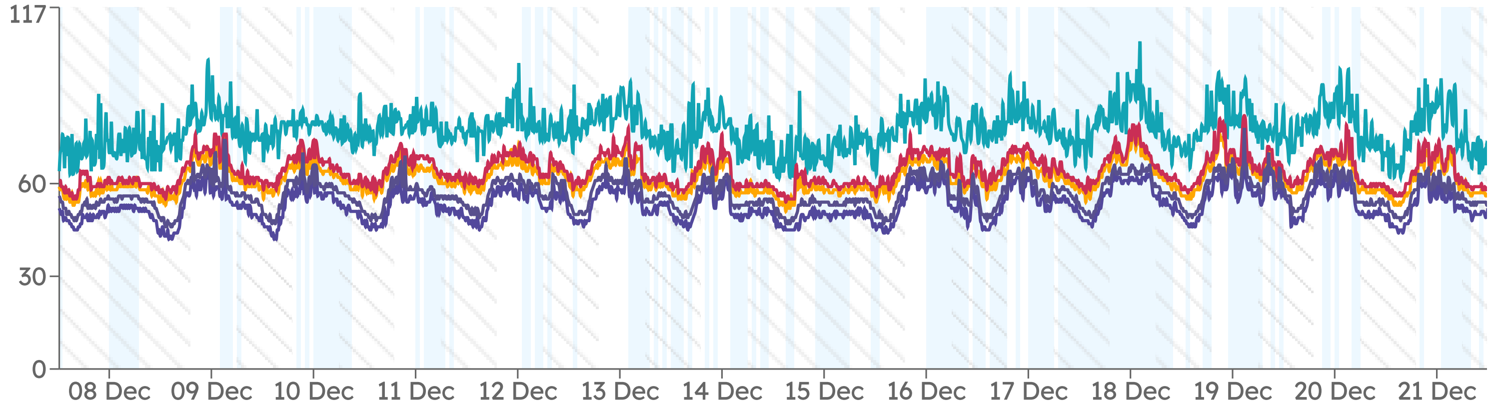
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

08 Dec 2024 - 21 Dec 2024

dB   15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

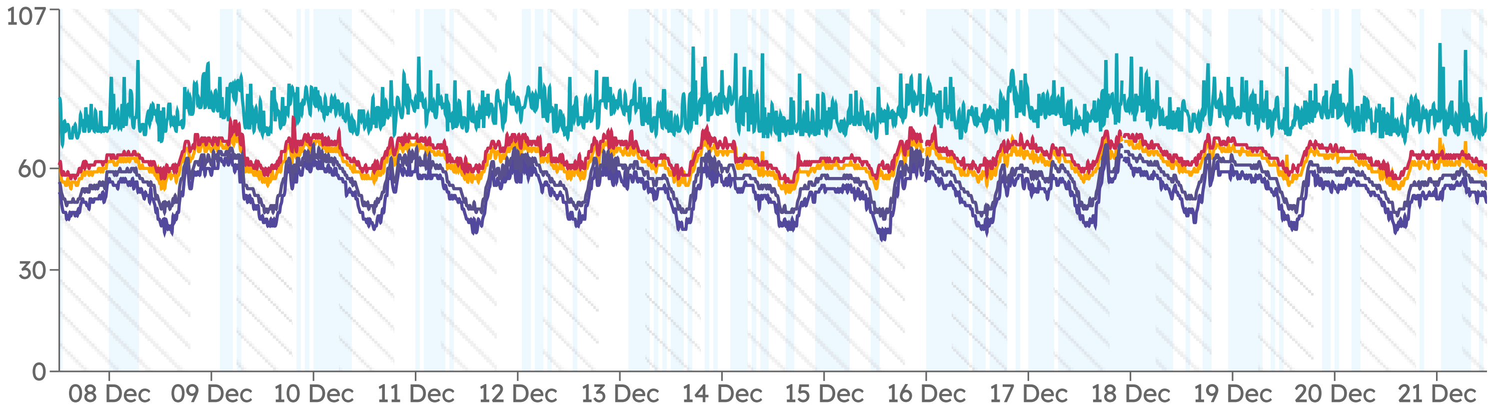
Other

Potentially weather affected periods   Out of Hours

Wentworth Street, Clyde

08 Dec 2024 - 21 Dec 2024

dB   15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods   Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	-	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	Unwin Street, Rosehill	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	Wentworth Street, Clyde	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

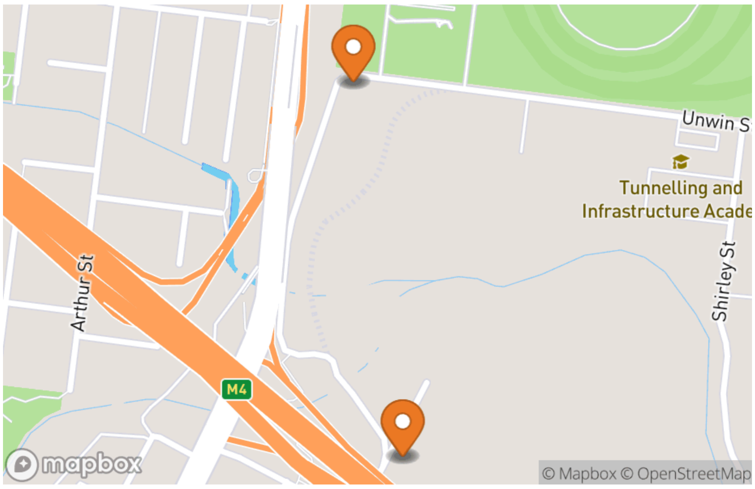
Sydney Metro West WTP MSF

Unattended Noise Monitoring 22Dec24_4Jan25 Clyde MSF

Monitoring Devices

Date Range 22 Dec 2024 - 04 Jan 2025

Device Serial	Monitoring Points
HEX-000378	-
HEX-000025	-
HEX-000236	Unwin Street, Rosehill
HEX-000522	Wentworth Street, Clyde



Noise Monitoring Statistics

Unwin Street, Rosehill

63 dB	DAY	L_{Aeq}
57 dB	EVENING	L_{Aeq}
58 dB	NIGHT	L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

61 dB	DAY	L_{Aeq}
59 dB	EVENING	L_{Aeq}
58 dB	NIGHT	L_{Aeq}

Average value across selected time period

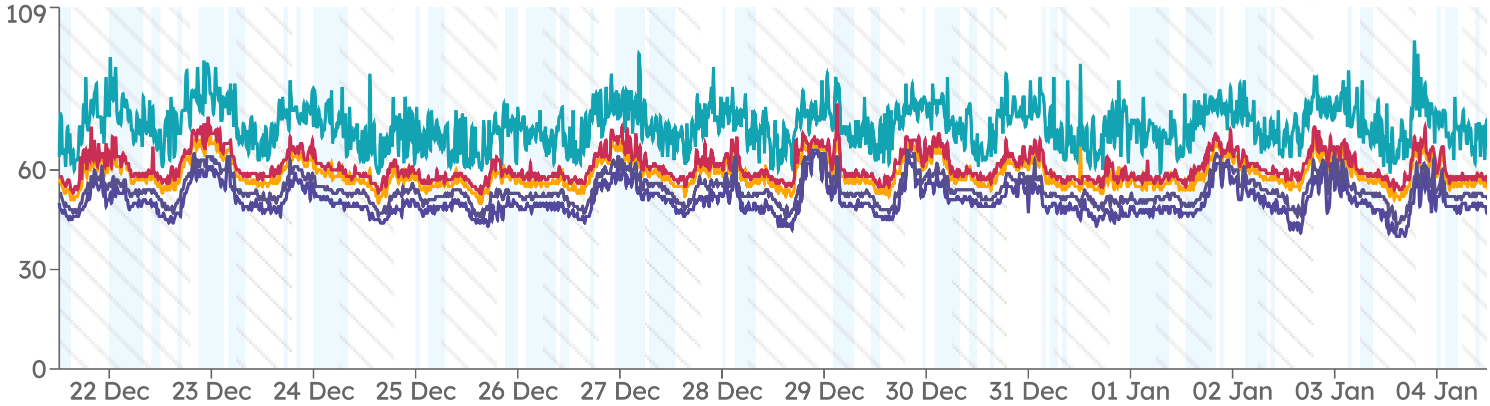
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

22 Dec 2024 - 04 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

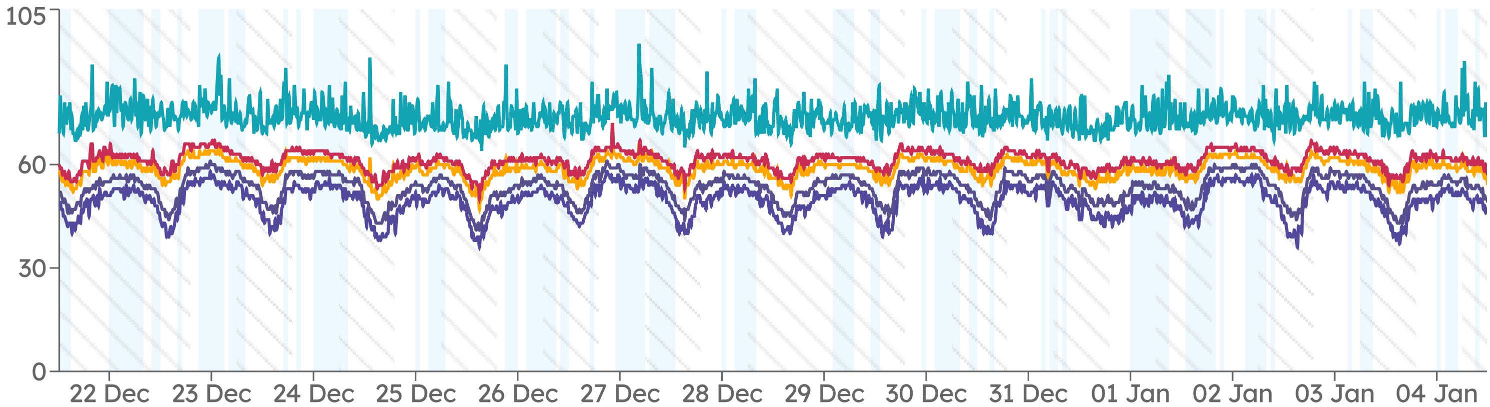
Potentially weather affected periods

Out of Hours

Wentworth Street, Clyde

22 Dec 2024 - 04 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	-	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	Unwin Street, Rosehill	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	Wentworth Street, Clyde	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

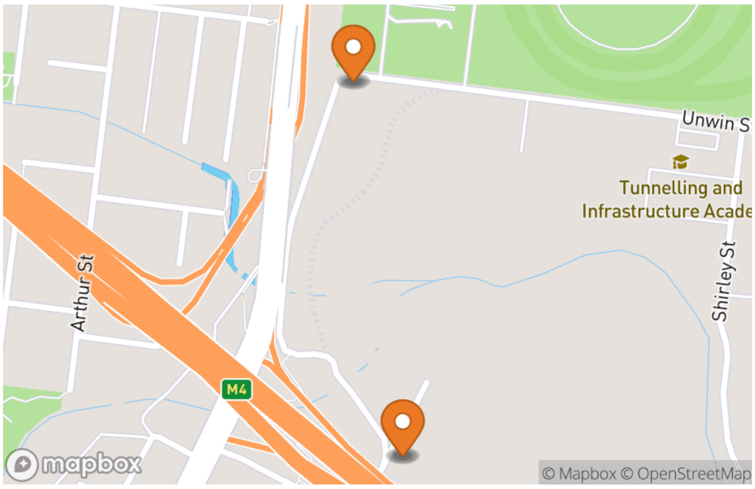
Sydney Metro West WTP MSF

Unattended Noise Monitoring 5Jan25_19Jan25 Clyde MSF

Monitoring Devices

Date Range 05 Jan 2025 - 19 Jan 2025

Device Serial	Monitoring Points
HEX-000378	-
HEX-000025	-
HEX-000236	Unwin Street, Rosehill
HEX-000522	Wentworth Street, Clyde



Noise Monitoring Statistics

Unwin Street, Rosehill

64 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

59 dB — NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

66 dB — DAY L_{Aeq}

63 dB — EVENING L_{Aeq}

61 dB — NIGHT L_{Aeq}

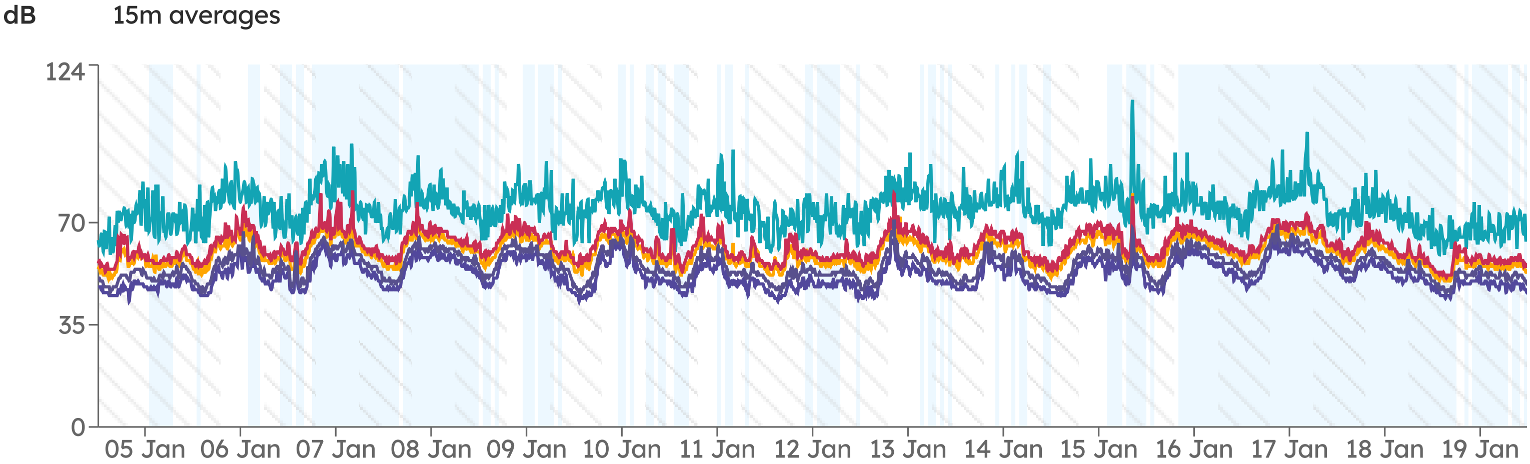
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Unwin Street, Rosehill

05 Jan 2025 - 19 Jan 2025



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

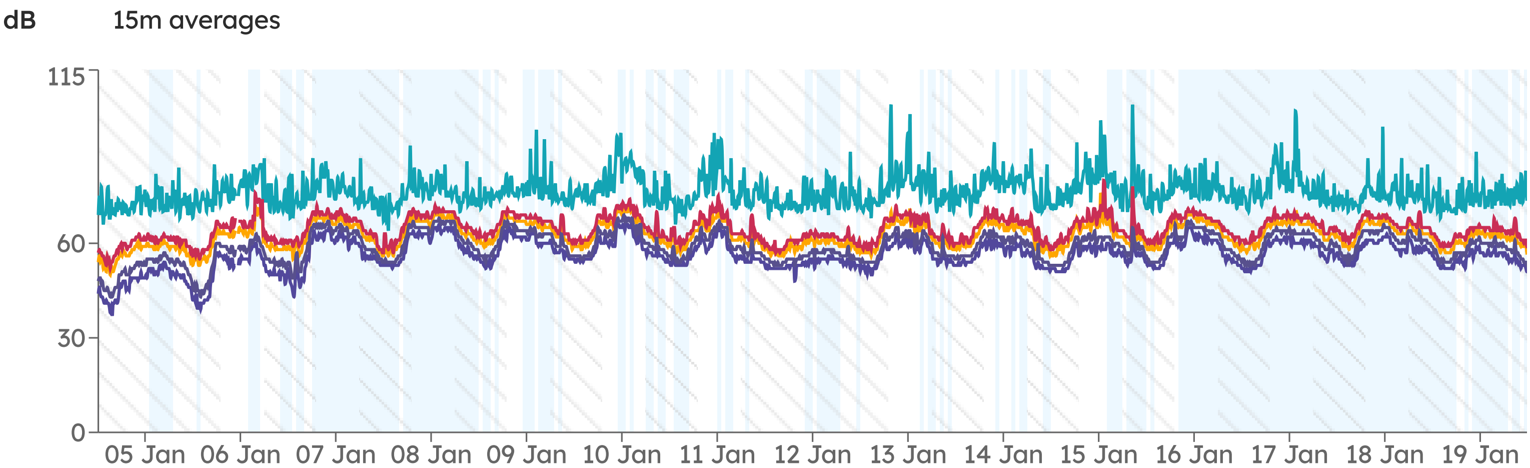
Other

Potentially weather affected periods

Out of Hours

Wentworth Street, Clyde

05 Jan 2025 - 19 Jan 2025



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000378	-	SiteHive Hexanode	10 Dec 2024	10 Dec 2026
HEX-000025	-	SiteHive Hexanode	25 Mar 2022	25 Mar 2024
HEX-000236	Unwin Street, Rosehill	SiteHive Hexanode	24 Oct 2024	24 Oct 2026
HEX-000522	Wentworth Street, Clyde	SiteHive Hexanode	19 Aug 2024	19 Aug 2026

Gamuda Laing O'Rourke

SiteHive

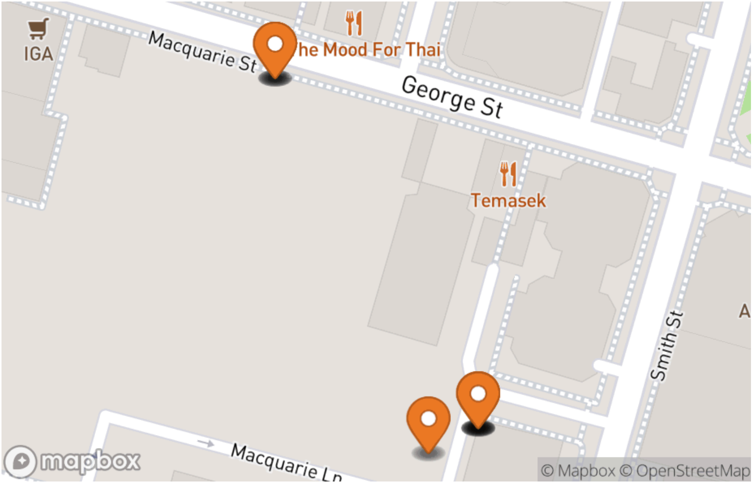
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 20Jul24_3Aug24 Parramatta

Monitoring Devices

Date Range 20 Jul 2024 - 03 Aug 2024

Device Serial	Monitoring Points
HEX-000104	New Macquarie Lane Hoarding
HEX-000019	-
HEX-000440	-
HEX-000445	-
HEX-000396	-
HEX-000441	-
HEX-000444	-
HEX-000324	-
HEX-000330	George St Hoarding new
HEX-000596	New Macquarie Lane Hoarding, 25 Smith Street



Noise Monitoring Statistics

New Macquarie Lane Hoa...

64 dB — DAY L_{Aeq}

58 dB — EVENING L_{Aeq}

58 dB — NIGHT L_{Aeq}

Average value across selected time period

25 Smith Street

71 dB — DAY L_{Aeq}

-- dB — EVENING L_{Aeq}

-- dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

66 dB — DAY L_{Aeq}

62 dB — EVENING L_{Aeq}

59 dB — NIGHT L_{Aeq}

Average value across selected time period

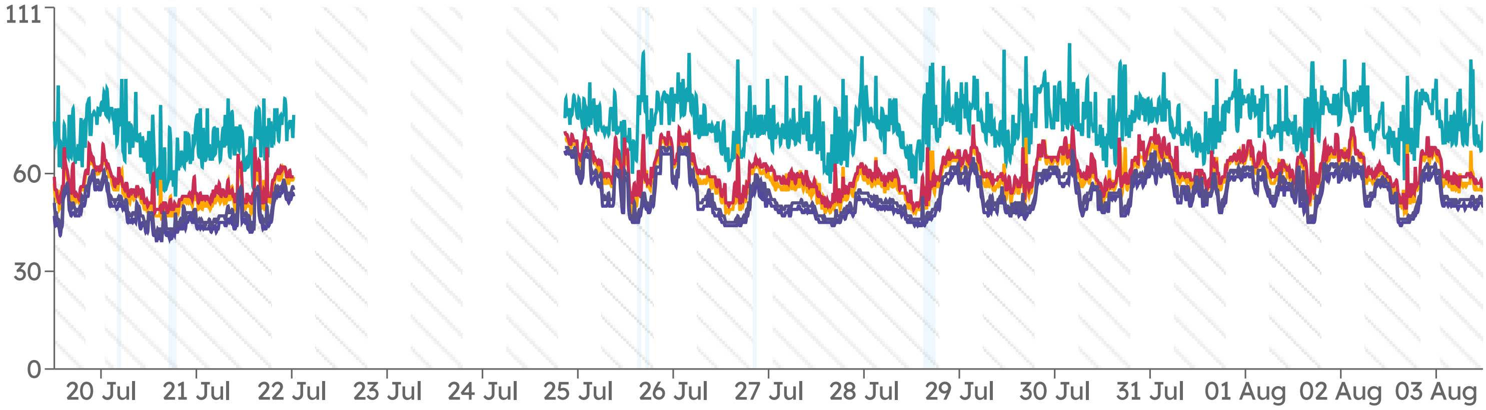
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

20 Jul 2024 - 03 Aug 2024

dB 15m averages



Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

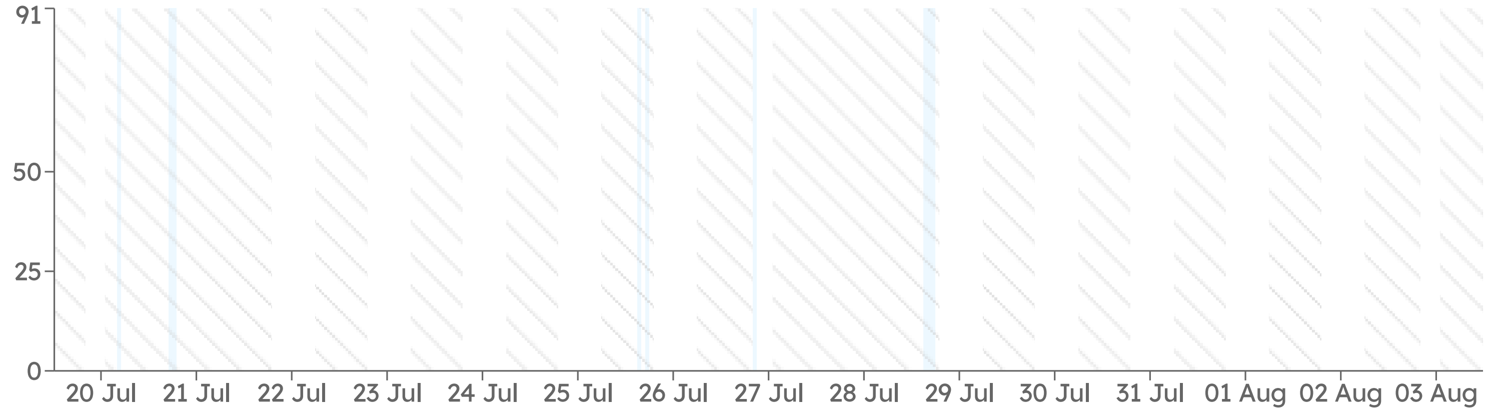
Other

- Potentially weather affected periods
- Out of Hours

25 Smith Street

20 Jul 2024 - 03 Aug 2024

dB 15m averages



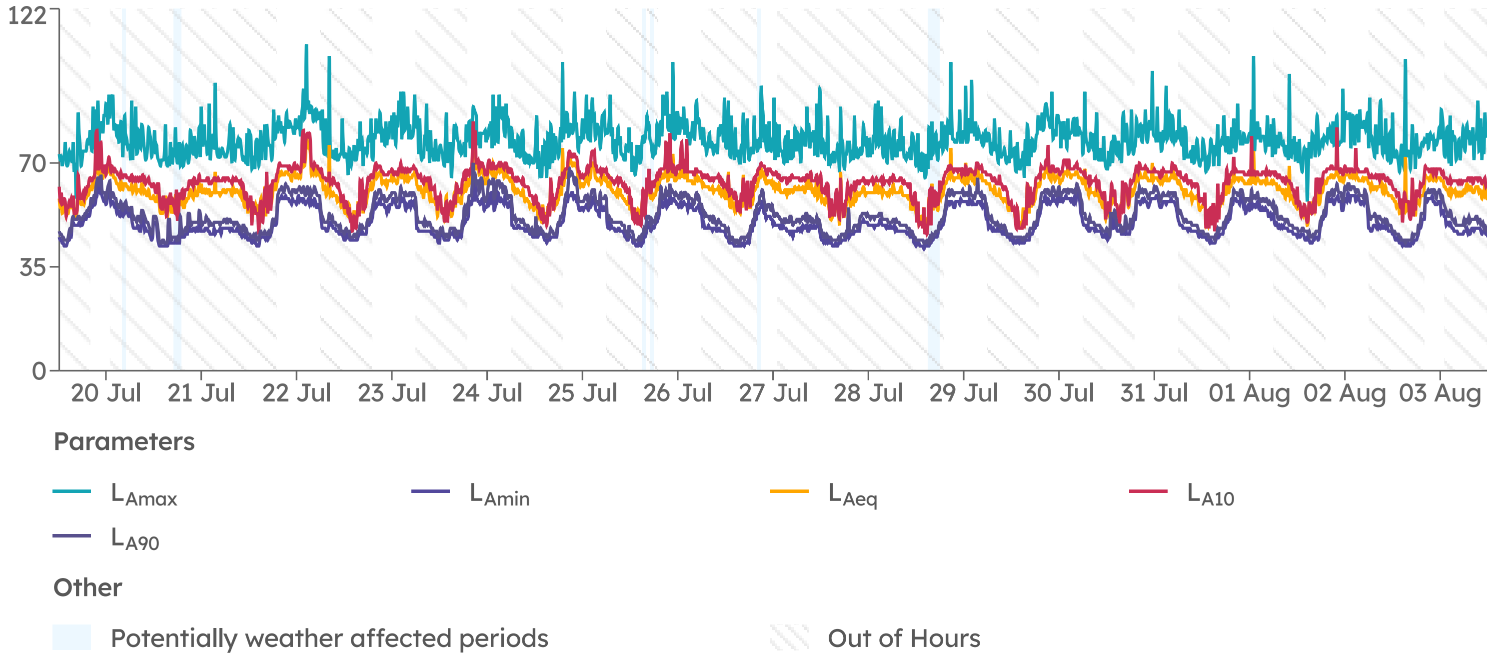
Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

Other

- Potentially weather affected periods
- Out of Hours

dB 15m averages



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	New Macquarie Lane Hoarding	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000440	-	SiteHive Hexanode	25 Sep 2024	25 Sep 2026
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000396	-	SiteHive Hexanode	13 May 2024	13 May 2026
HEX-000441	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000444	-	SiteHive Hexanode	25 Oct 2024	25 Oct 2026
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding, 25 Smith Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

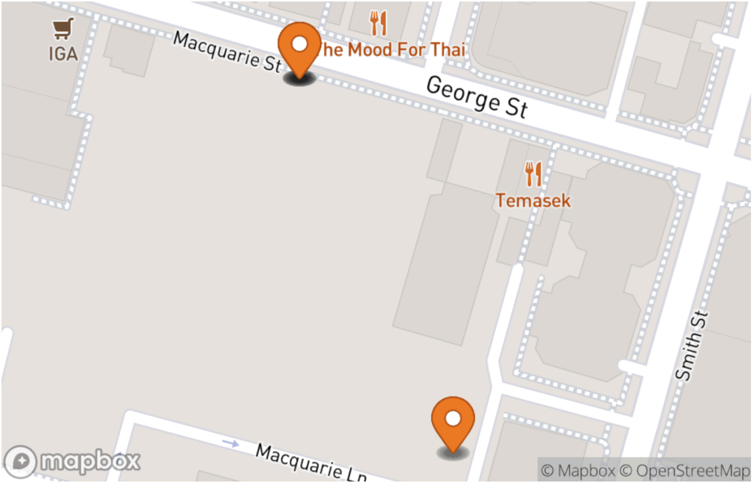
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 4Aug24_17Aug24 Parramatta

Monitoring Devices

Date Range 04 Aug 2024 - 17 Aug 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000019	-
HEX-000324	-
HEX-000330	George St Hoarding new
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period
69 dB	DAY L_{Aeq}
60 dB	EVENING L_{Aeq}
59 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

Value	Period
69 dB	DAY L_{Aeq}
62 dB	EVENING L_{Aeq}
60 dB	NIGHT L_{Aeq}

Average value across selected time period

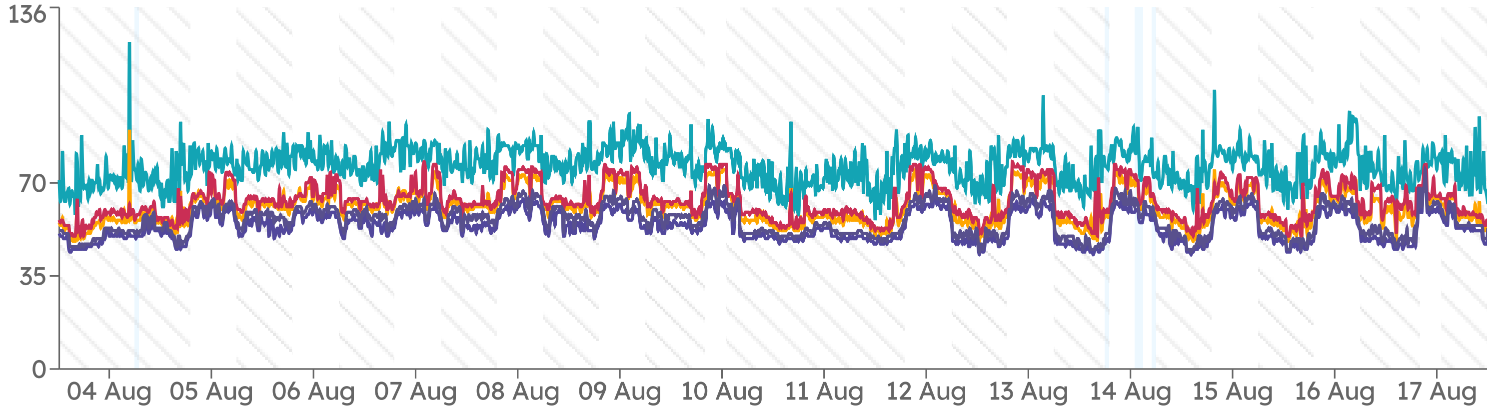
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

04 Aug 2024 - 17 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

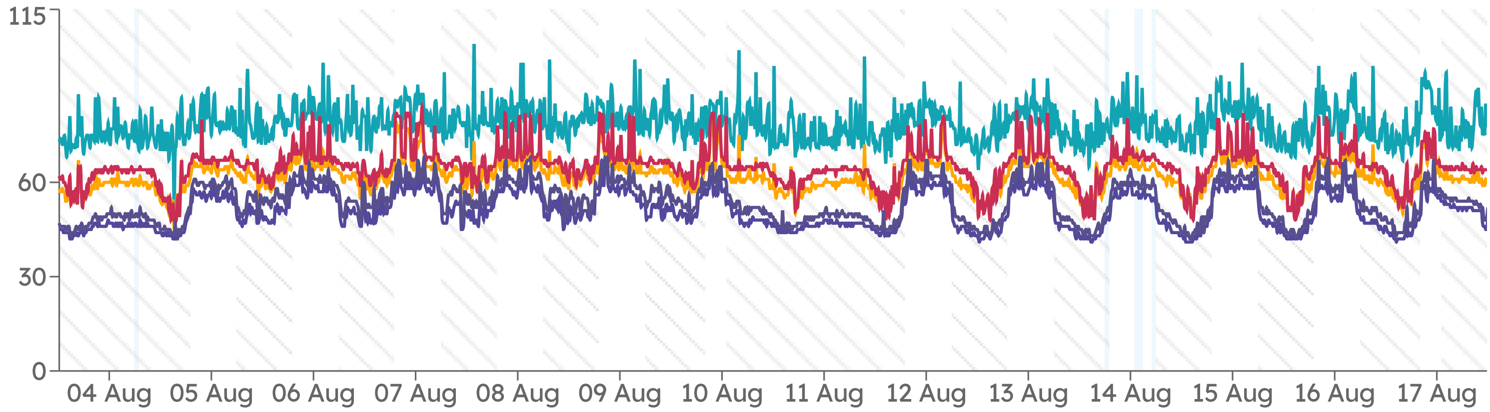
Potentially weather affected periods

Out of Hours

George St Hoarding new

04 Aug 2024 - 17 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

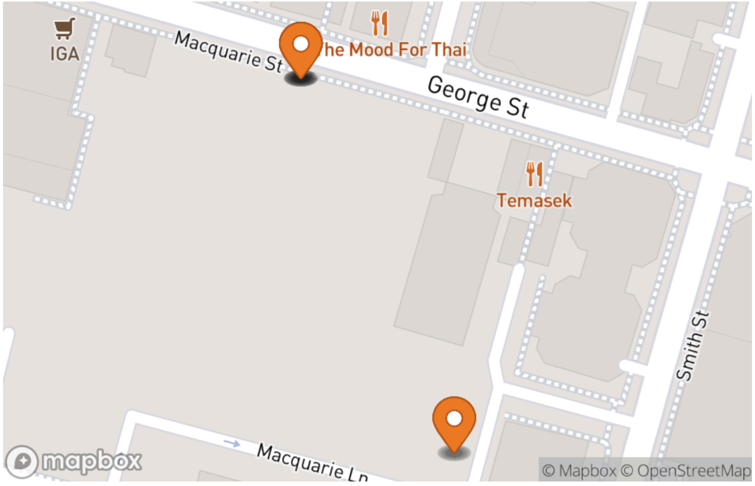
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 18Aug24_31Aug24 Parramatta

Monitoring Devices

Date Range 18 Aug 2024 - 31 Aug 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000019	-
HEX-000324	-
HEX-000330	George St Hoarding new
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period
70 dB	DAY L_{Aeq}
62 dB	EVENING L_{Aeq}
60 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

Value	Period
67 dB	DAY L_{Aeq}
61 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

Average value across selected time period

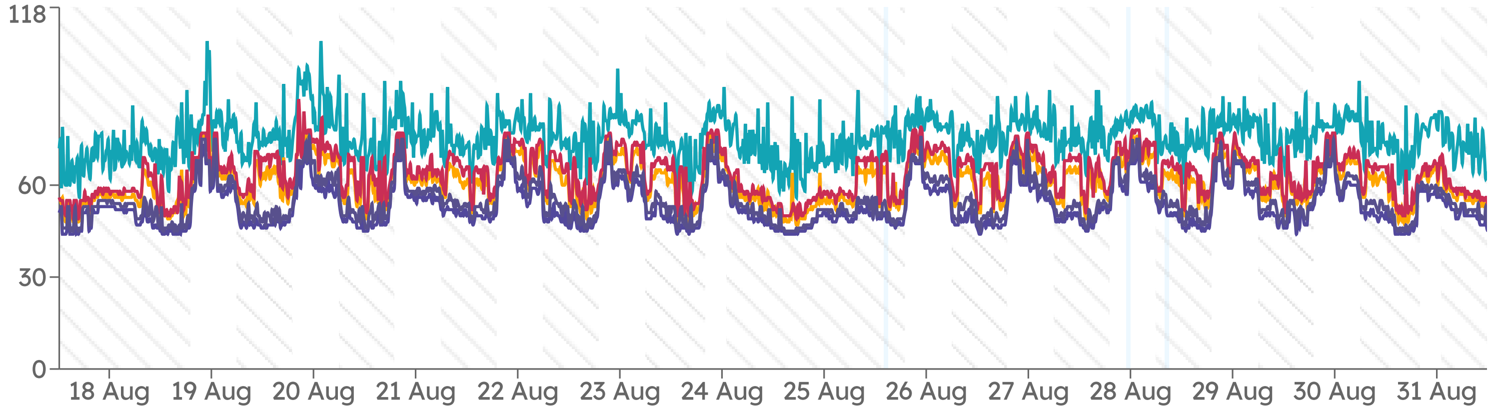
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

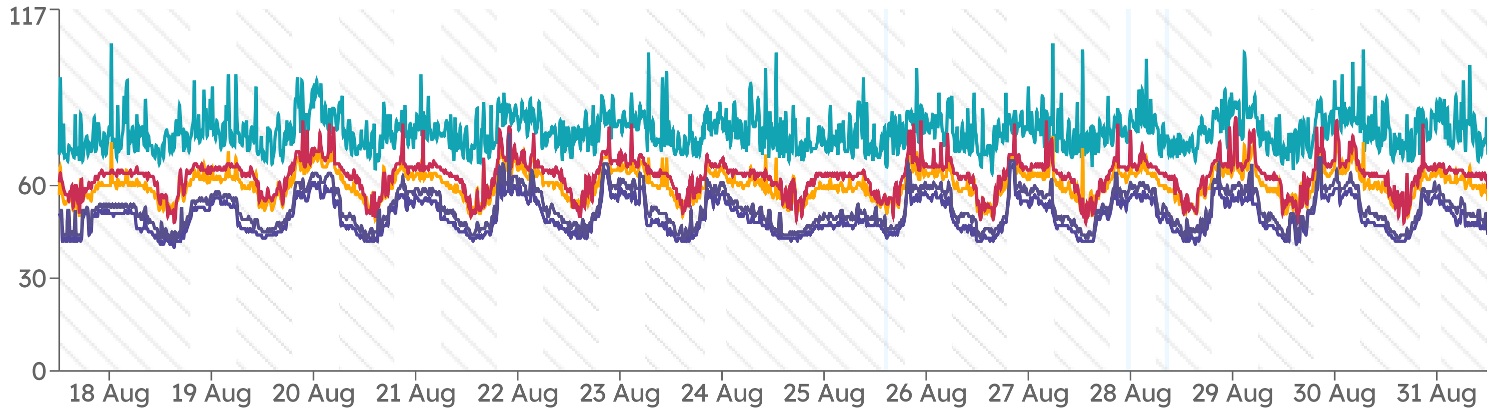
Potentially weather affected periods

Out of Hours

George St Hoarding new

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

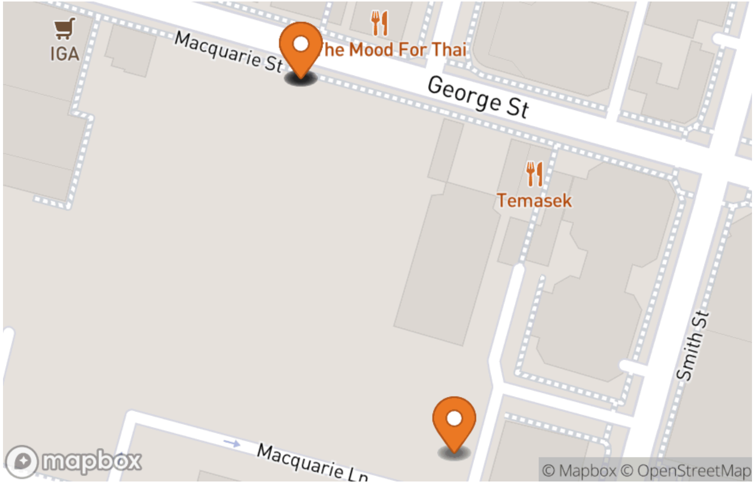
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 1Sep24_14Sep24 Parramatta

Monitoring Devices

Date Range 01 Sep 2024 - 14 Sep 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000019	-
HEX-000324	-
HEX-000330	George St Hoarding new
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

71 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

59 dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

67 dB — DAY L_{Aeq}

60 dB — EVENING L_{Aeq}

56 dB — NIGHT L_{Aeq}

Average value across selected time period

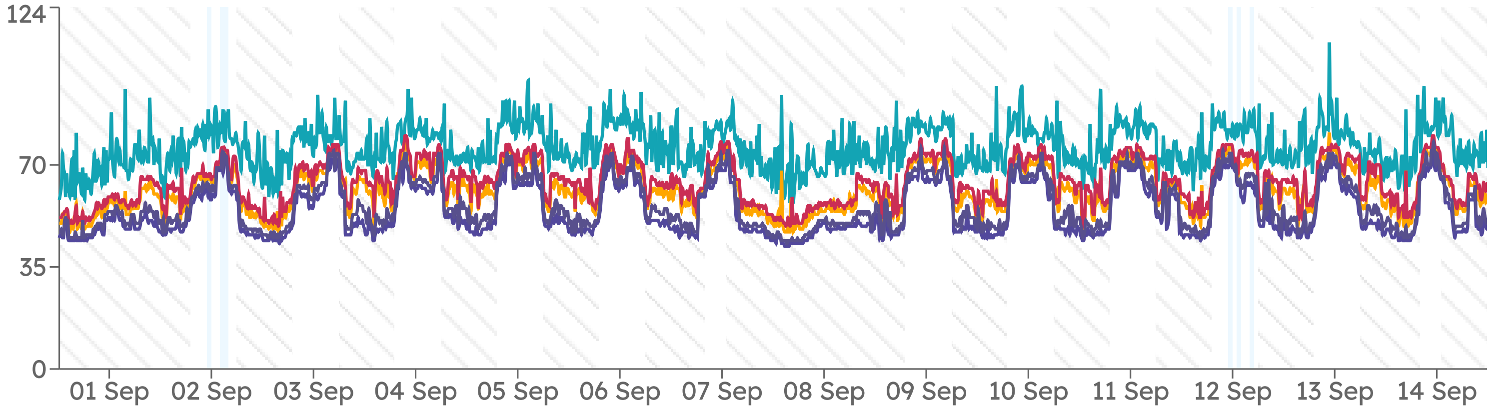
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

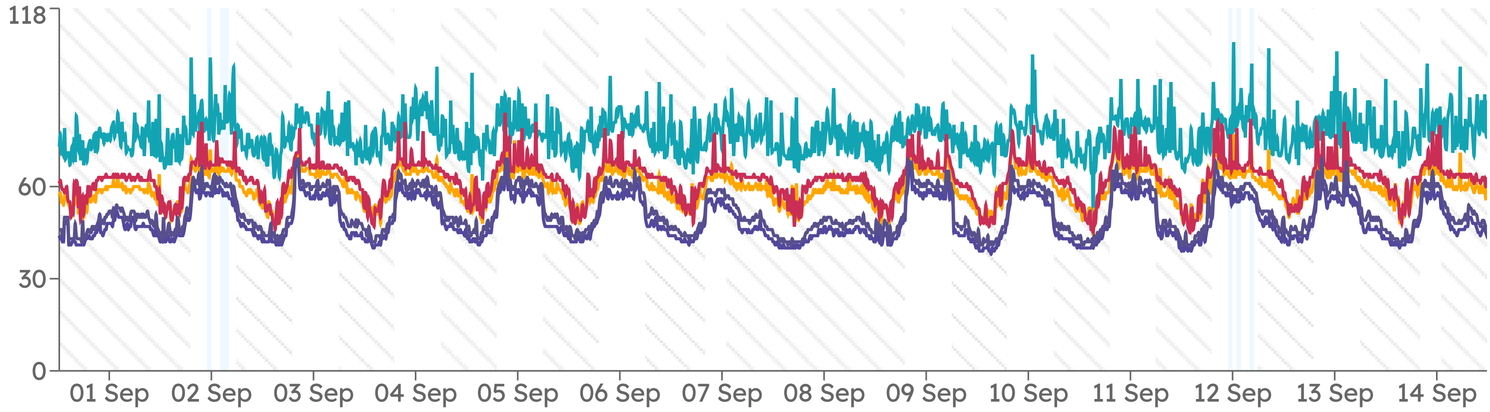
Other

Potentially weather affected periods Out of Hours

George St Hoarding new

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

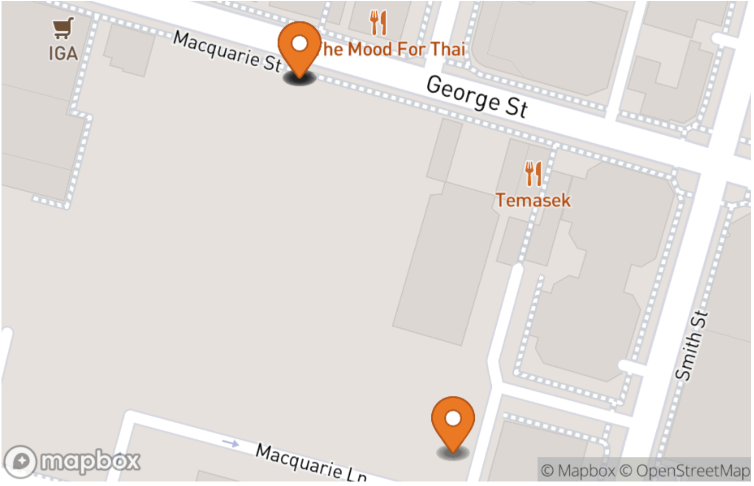
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 15Sep24_28Sep24 Parramatta

Monitoring Devices

Date Range 15 Sep 2024 - 28 Sep 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000019	-
HEX-000324	-
HEX-000330	George St Hoarding new
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period
70 dB	DAY L_{Aeq}
64 dB	EVENING L_{Aeq}
60 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

Value	Period
66 dB	DAY L_{Aeq}
61 dB	EVENING L_{Aeq}
57 dB	NIGHT L_{Aeq}

Average value across selected time period

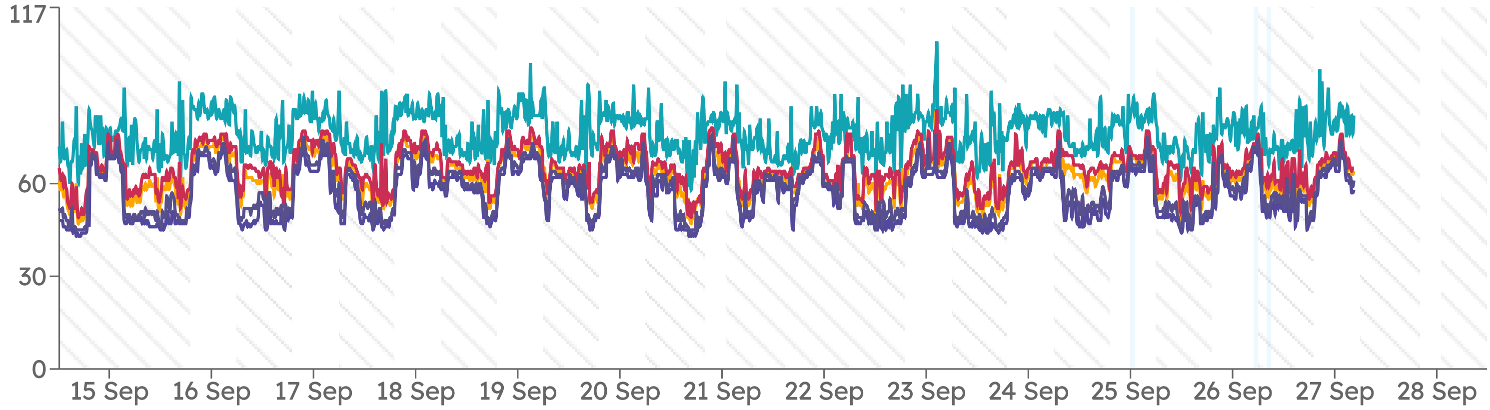
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

15 Sep 2024 - 28 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

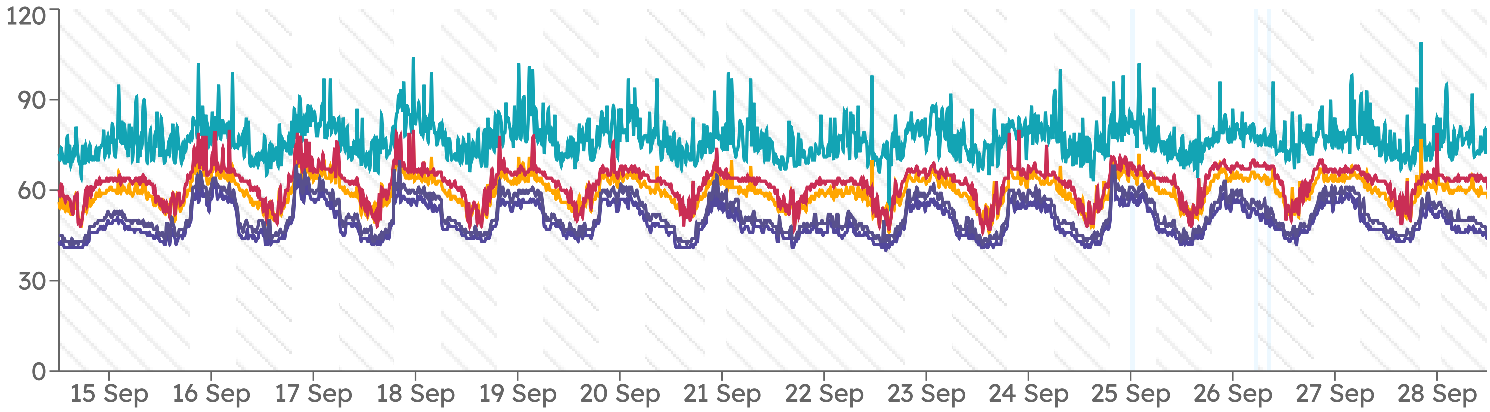
Other

Potentially weather affected periods Out of Hours

George St Hoarding new

15 Sep 2024 - 28 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

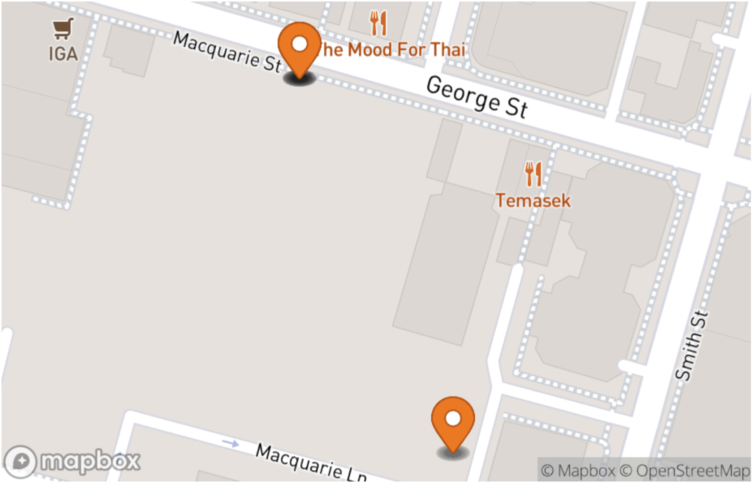
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 29Sep24_12Oct24 Parramatta

Monitoring Devices

Date Range 29 Sep 2024 - 12 Oct 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000019	-
HEX-000324	-
HEX-000330	George St Hoarding new
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period	Metric
69 dB	DAY	L_{Aeq}
62 dB	EVENING	L_{Aeq}
61 dB	NIGHT	L_{Aeq}

Average value across selected time period

George St Hoarding new

Value	Period	Metric
64 dB	DAY	L_{Aeq}
60 dB	EVENING	L_{Aeq}
57 dB	NIGHT	L_{Aeq}

Average value across selected time period

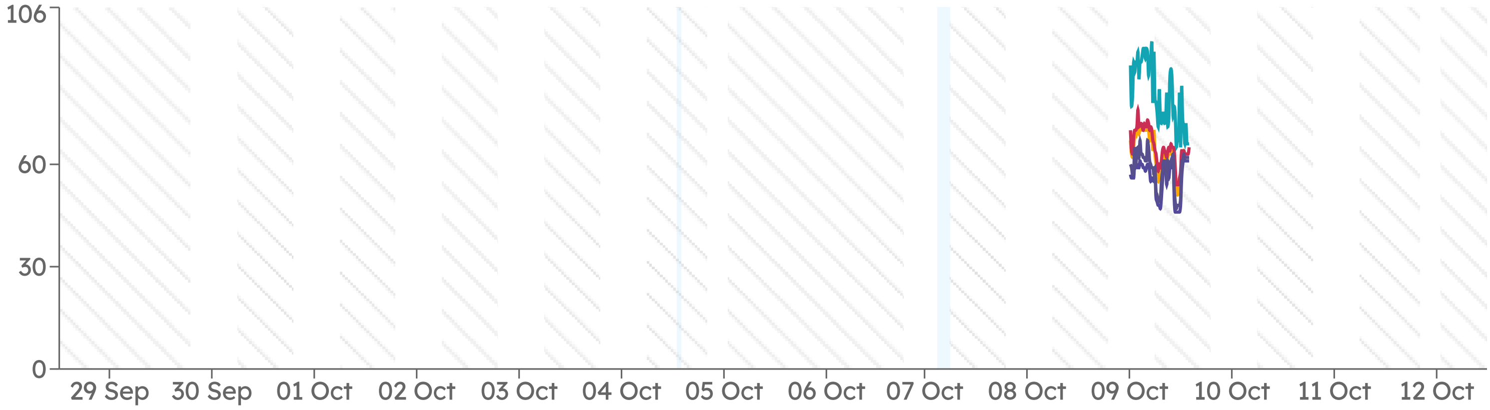
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

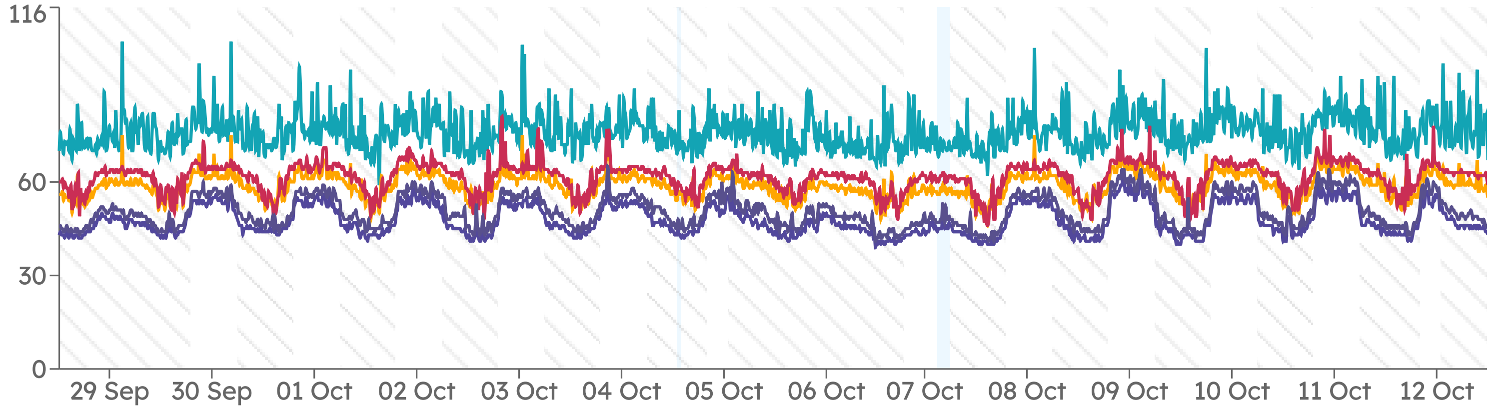
Other

Potentially weather affected periods Out of Hours

George St Hoarding new

29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

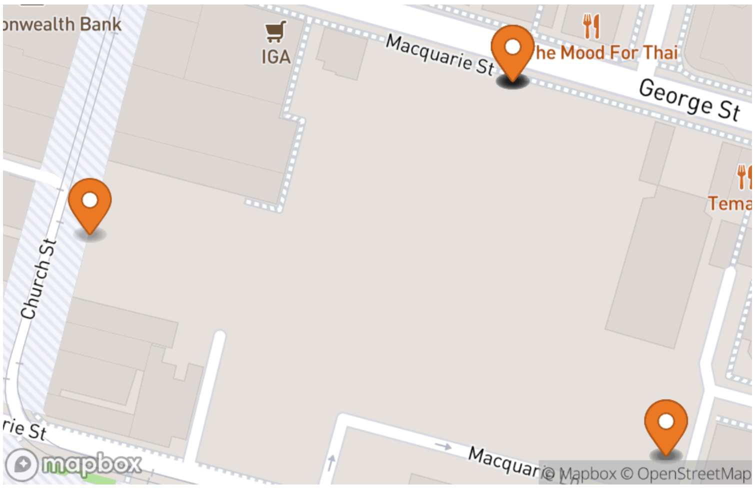
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 13Oct24_26Oct24 Parramatta

Monitoring Devices

Date Range 13 Oct 2024 - 26 Oct 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000019	-
HEX-000324	-
HEX-000330	George St Hoarding new, Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

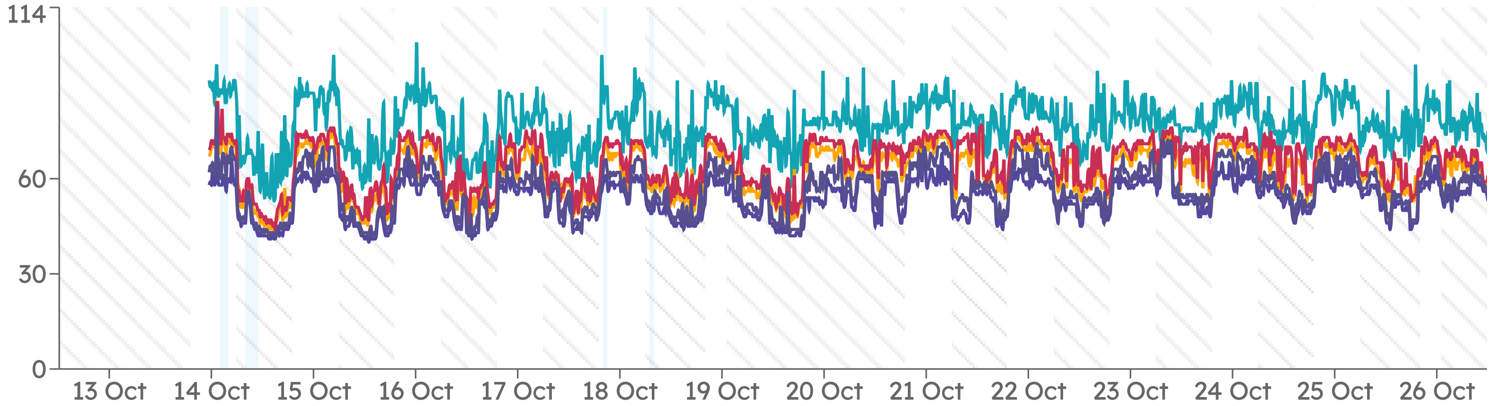
New Macquarie Lane Hoa...		George St Hoarding new		Western Hoarding Church...	
69 dB	DAY L_{Aeq}	65 dB	DAY L_{Aeq}	65 dB	DAY L_{Aeq}
64 dB	EVENING L_{Aeq}	60 dB	EVENING L_{Aeq}	64 dB	EVENING L_{Aeq}
61 dB	NIGHT L_{Aeq}	56 dB	NIGHT L_{Aeq}	56 dB	NIGHT L_{Aeq}
Average value across selected time period		Average value across selected time period		Average value across selected time period	

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

New Macquarie Lane Hoarding

13 Oct 2024 - 26 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

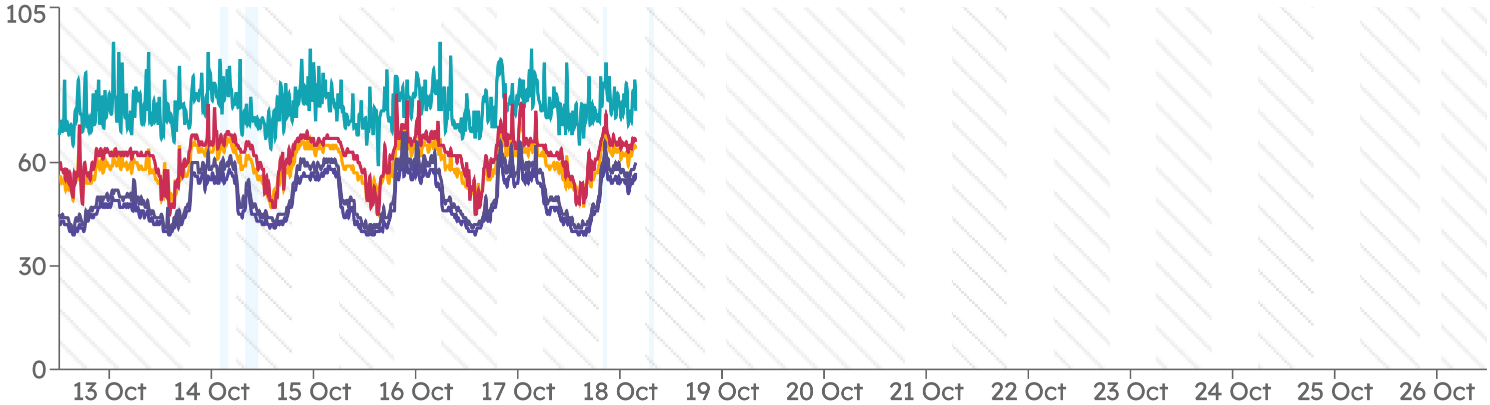
Other

Potentially weather affected periods Out of Hours

George St Hoarding new

13 Oct 2024 - 26 Oct 2024

dB 15m averages



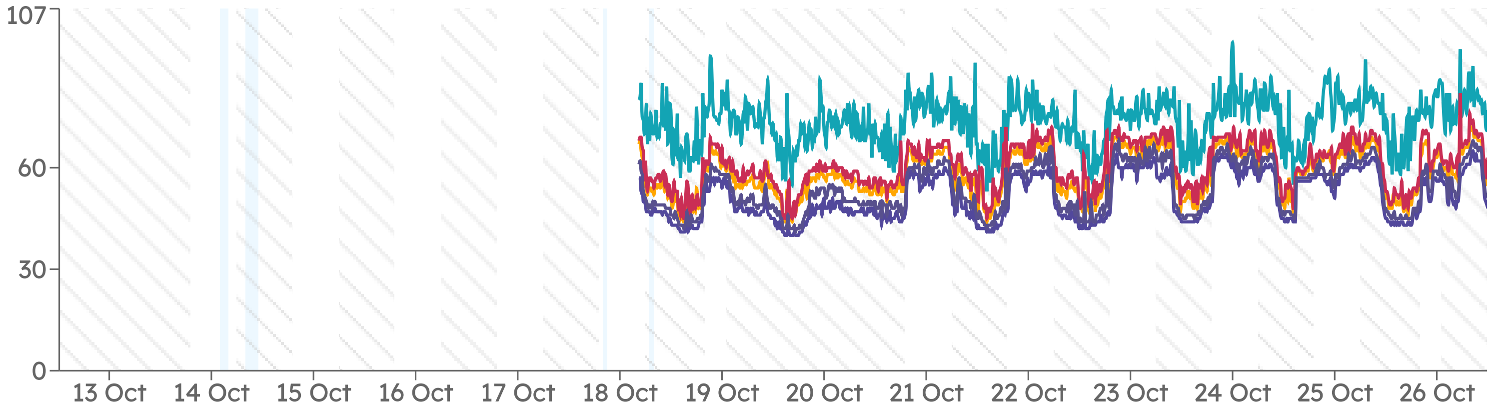
Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000019	-	SiteHive Hexanode	-	-
HEX-000324	-	SiteHive Hexanode	21 Aug 2024	21 Aug 2026
HEX-000330	George St Hoarding new, Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

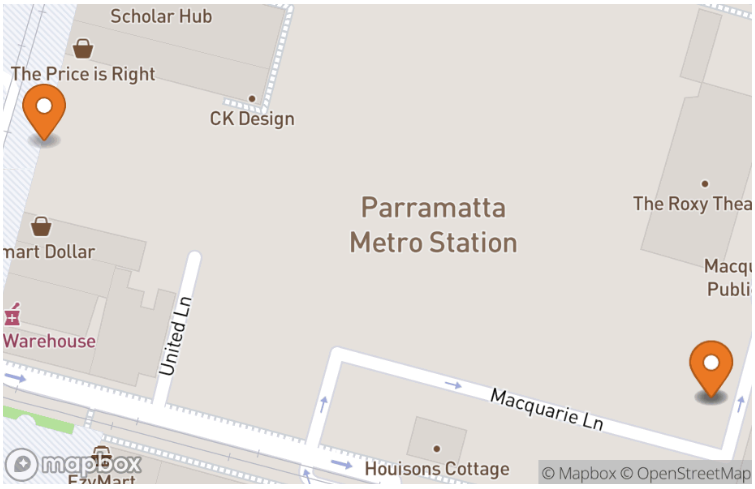
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 27Oct24_9Nov24 Parramatta

Monitoring Devices

Date Range 27 Oct 2024 - 09 Nov 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000330	Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period
66 dB	DAY L_{Aeq}
64 dB	EVENING L_{Aeq}
61 dB	NIGHT L_{Aeq}

Average value across selected time period

Western Hoarding Church...

Value	Period
65 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

Average value across selected time period

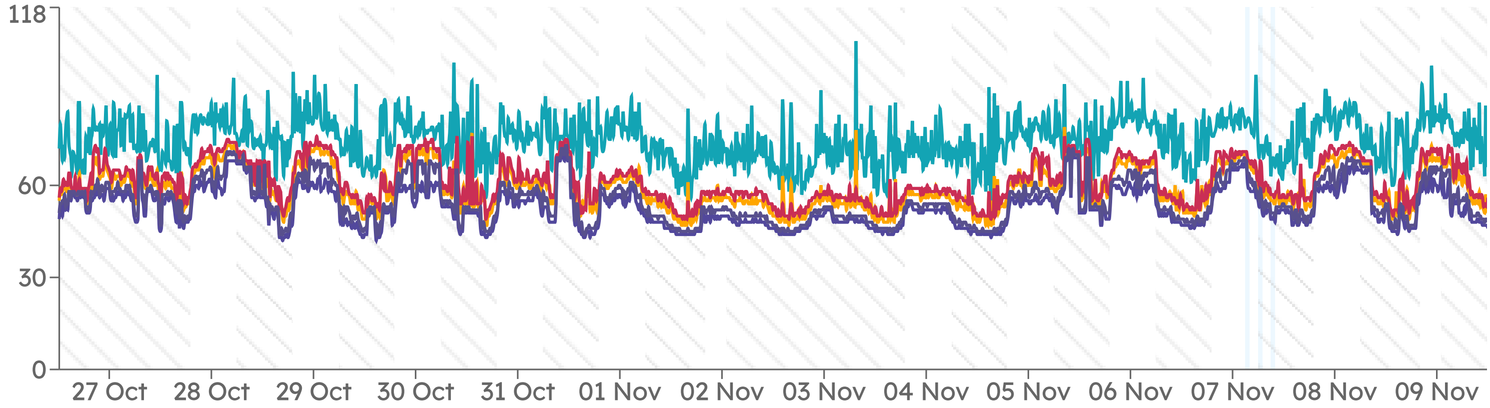
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

27 Oct 2024 - 09 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

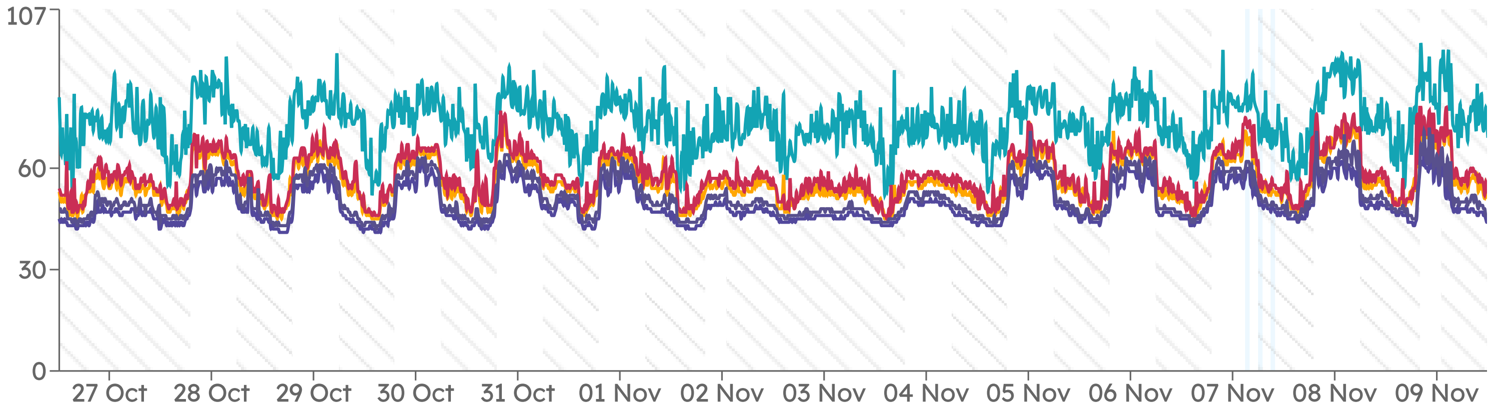
Potentially weather affected periods

Out of Hours

Western Hoarding Church St

27 Oct 2024 - 09 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000330	Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

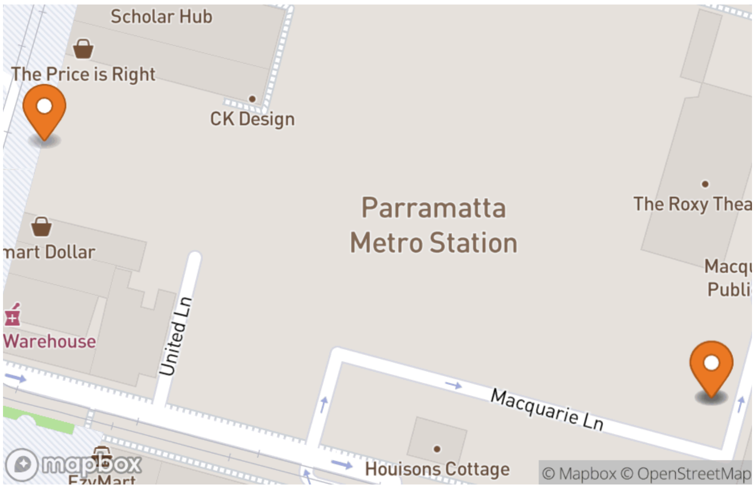
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 10Nov24_23Nov24 Parramatta

Monitoring Devices

Date Range 10 Nov 2024 - 23 Nov 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000330	Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period
69 dB	DAY L_{Aeq}
60 dB	EVENING L_{Aeq}
57 dB	NIGHT L_{Aeq}

Average value across selected time period

Western Hoarding Church...

Value	Period
63 dB	DAY L_{Aeq}
56 dB	EVENING L_{Aeq}
55 dB	NIGHT L_{Aeq}

Average value across selected time period

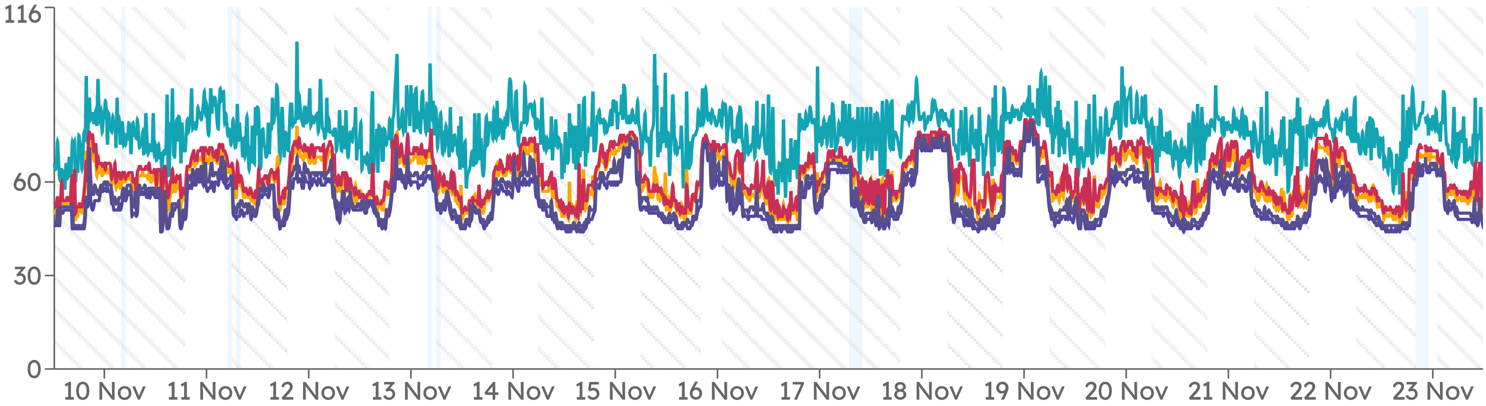
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

10 Nov 2024 - 23 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

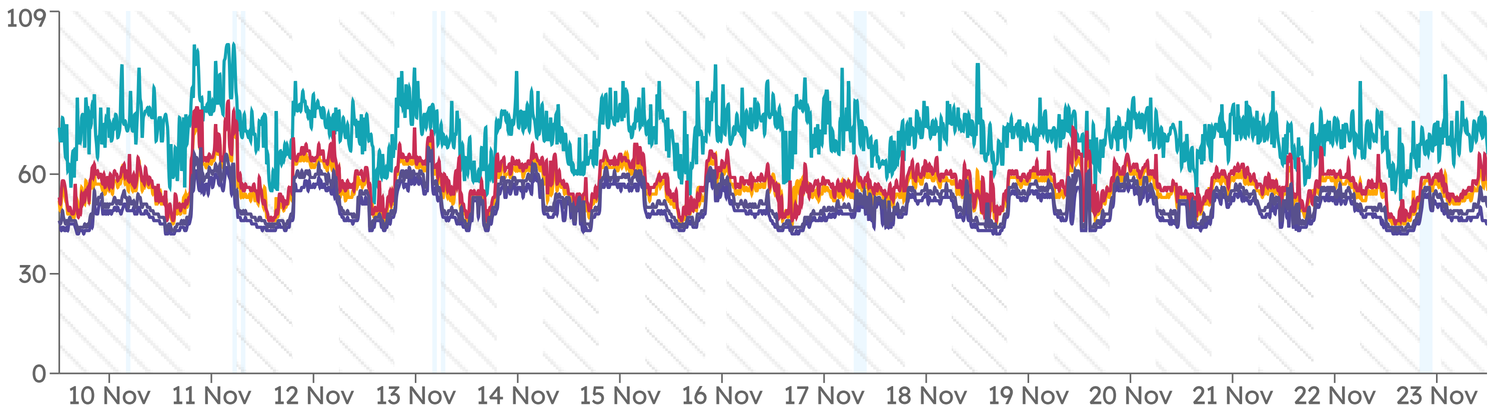
Other

Potentially weather affected periods Out of Hours

Western Hoarding Church St

10 Nov 2024 - 23 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000330	Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

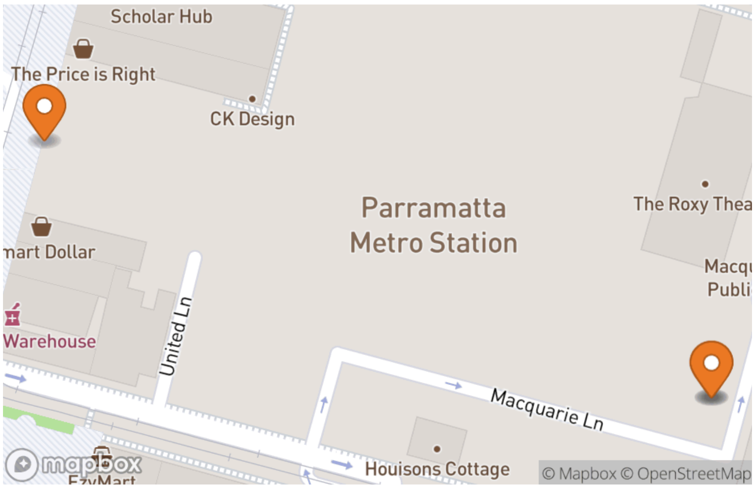
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 24Nov24_7Dec24 Parramatta

Monitoring Devices

Date Range 24 Nov 2024 - 07 Dec 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000330	Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

69 dB	DAY L_{Aeq}
65 dB	EVENING L_{Aeq}
62 dB	NIGHT L_{Aeq}

Average value across selected time period

Western Hoarding Church...

60 dB	DAY L_{Aeq}
57 dB	EVENING L_{Aeq}
56 dB	NIGHT L_{Aeq}

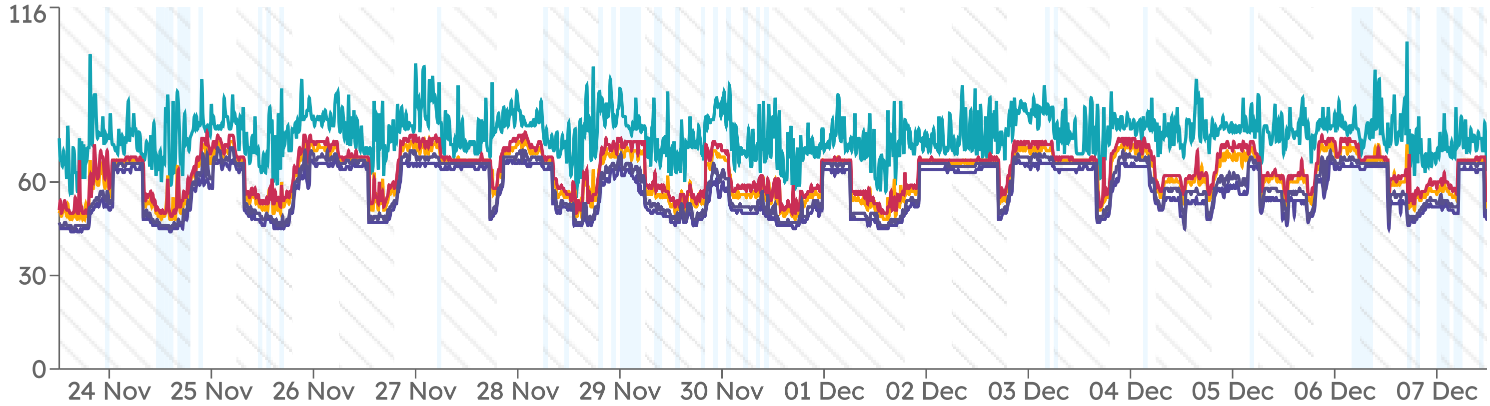
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding — 24 Nov 2024 - 07 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

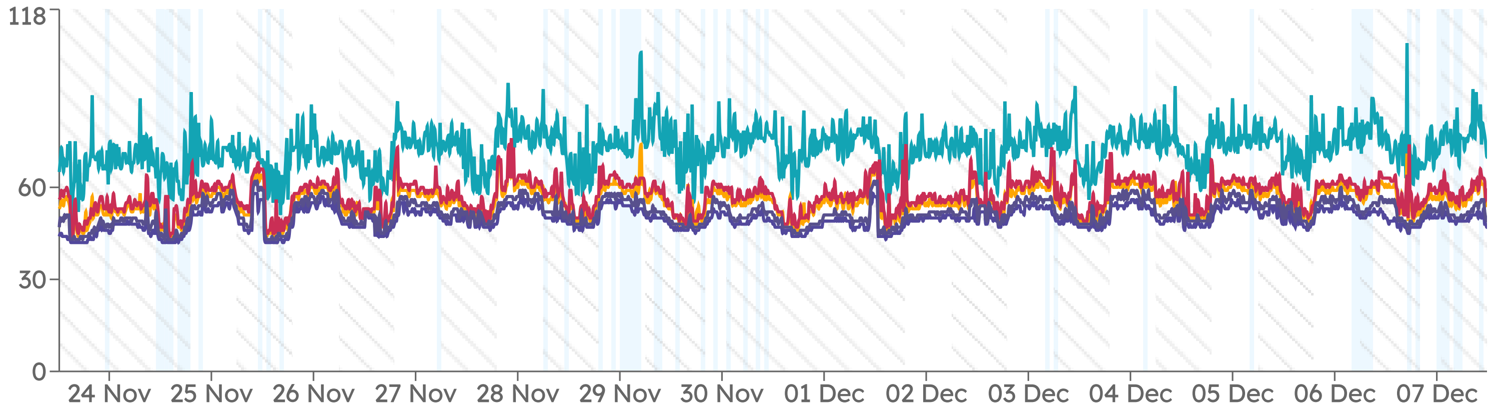
Other

Potentially weather affected periods

Out of Hours

Western Hoarding Church St — 24 Nov 2024 - 07 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000330	Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

SiteHive

Gamuda Laing O'Rourke

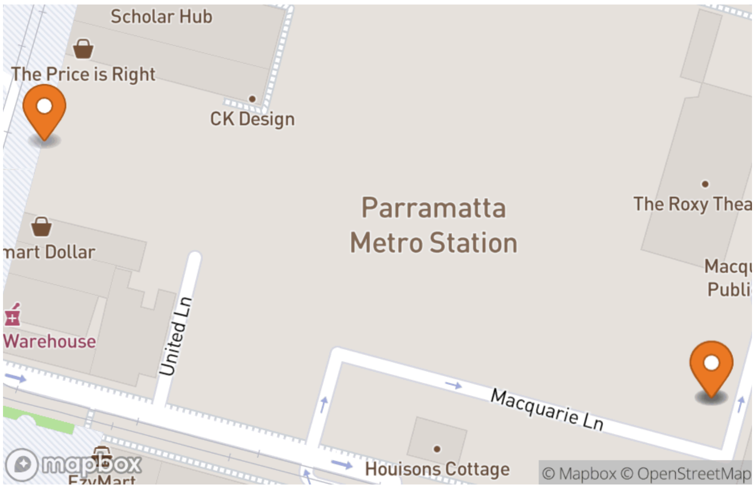
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 8Dec24_21Dec24 Parramatta

Monitoring Devices

Date Range 08 Dec 2024 - 21 Dec 2024

Device Serial	Monitoring Points
HEX-000104	-
HEX-000330	Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

66 dB — DAY L_{Aeq}

62 dB — EVENING L_{Aeq}

56 dB — NIGHT L_{Aeq}

Average value across selected time period

Western Hoarding Church...

62 dB — DAY L_{Aeq}

59 dB — EVENING L_{Aeq}

55 dB — NIGHT L_{Aeq}

Average value across selected time period

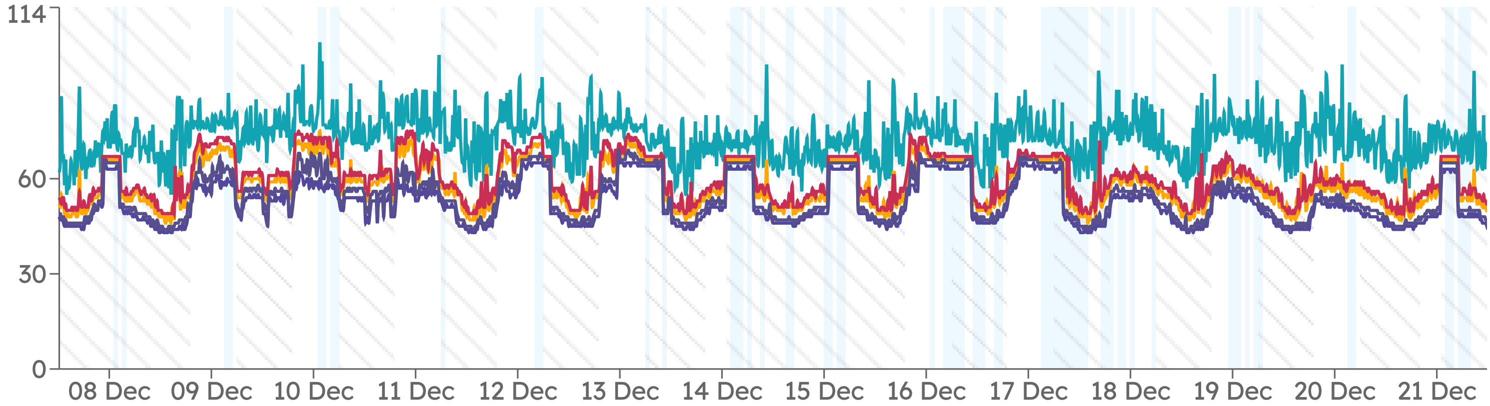
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

08 Dec 2024 - 21 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

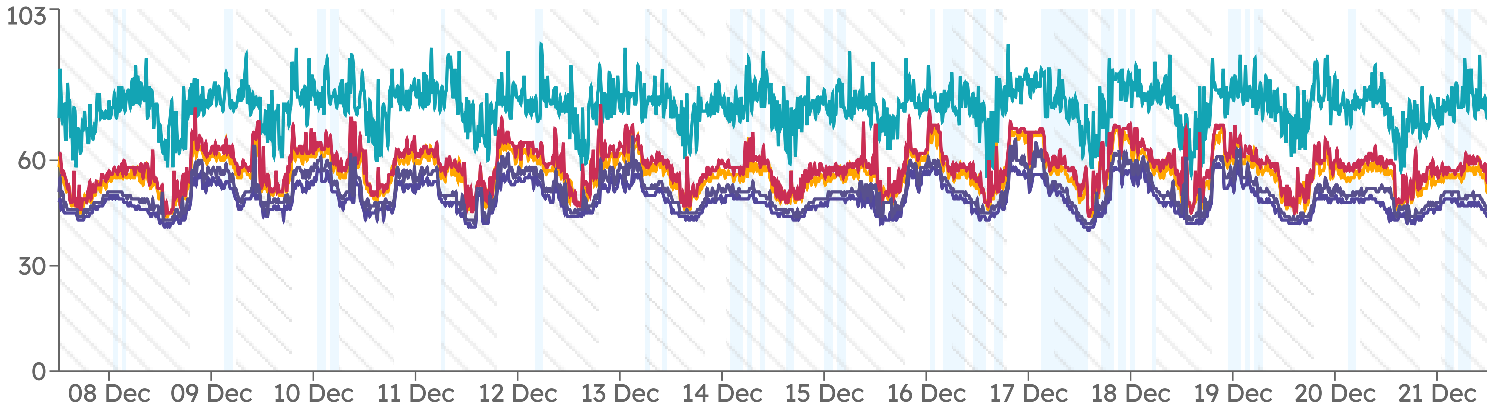
Potentially weather affected periods

Out of Hours

Western Hoarding Church St

08 Dec 2024 - 21 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000330	Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

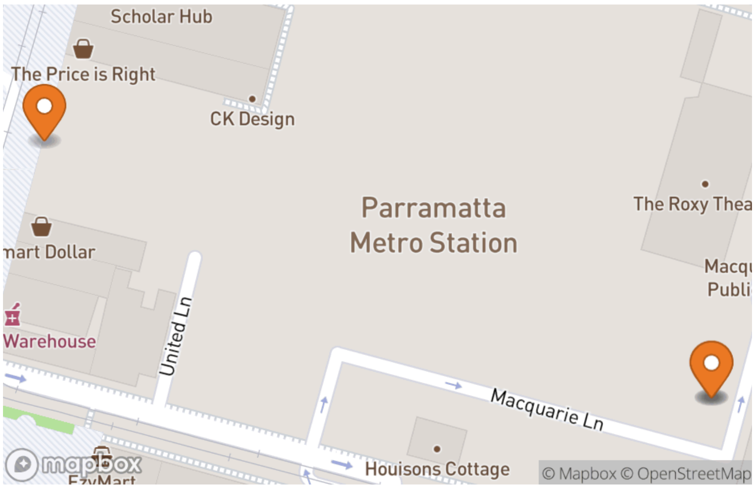
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 22Dec24_4Jan24 Parramatta

Monitoring Devices

Date Range 22 Dec 2024 - 04 Jan 2025

Device Serial	Monitoring Points
HEX-000104	-
HEX-000330	Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...

Value	Period
60 dB	DAY L_{Aeq}
61 dB	EVENING L_{Aeq}
54 dB	NIGHT L_{Aeq}

Average value across selected time period

Western Hoarding Church...

Value	Period
56 dB	DAY L_{Aeq}
58 dB	EVENING L_{Aeq}
54 dB	NIGHT L_{Aeq}

Average value across selected time period

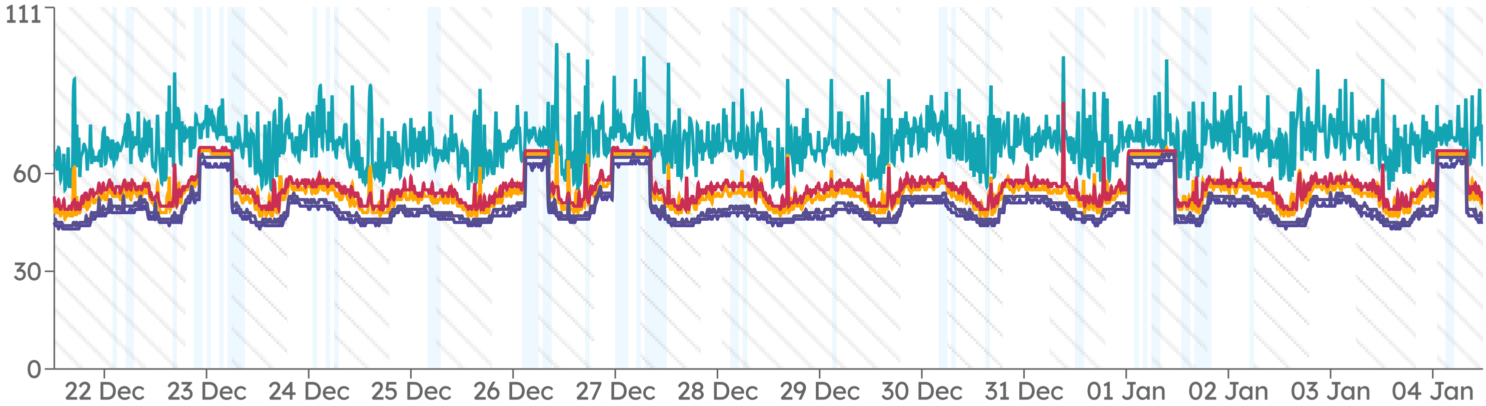
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

22 Dec 2024 - 04 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

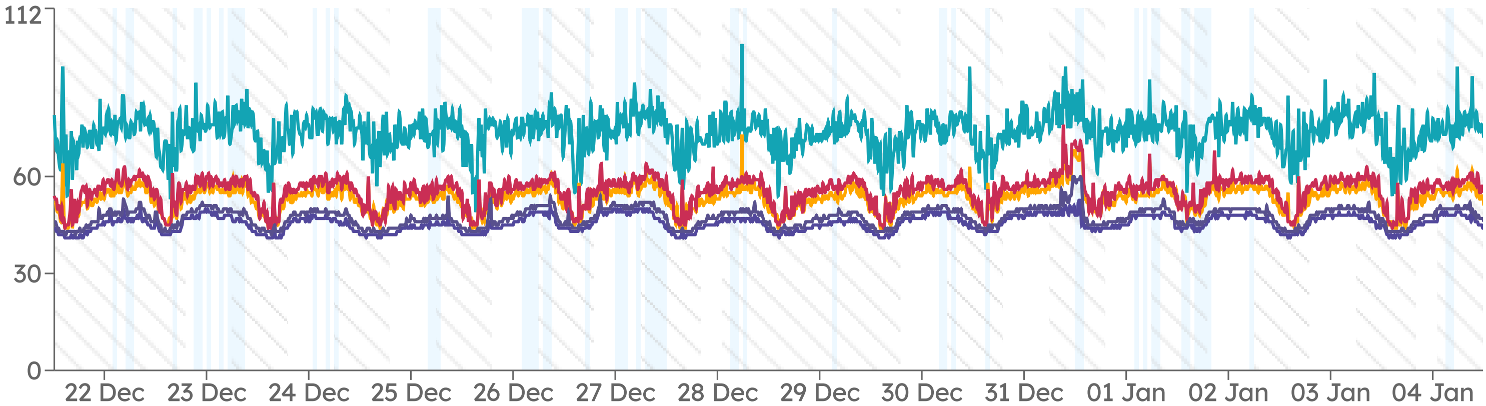
Other

Potentially weather affected periods Out of Hours

Western Hoarding Church St

22 Dec 2024 - 04 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000330	Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

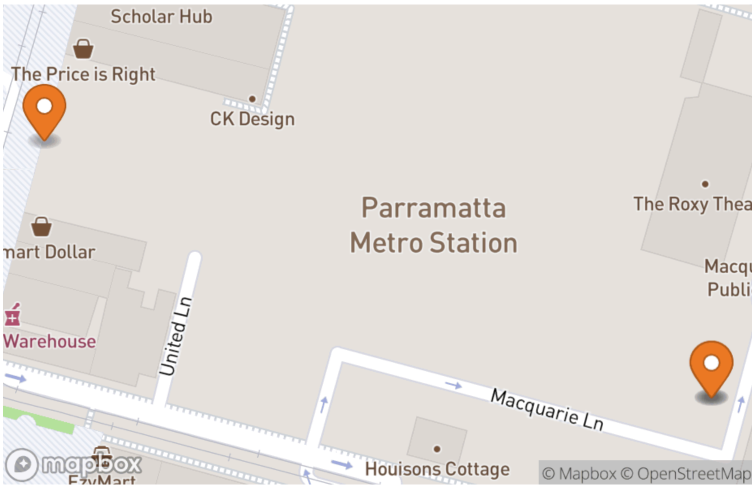
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 5Jan24_19Jan24 Parramatta

Monitoring Devices

Date Range 05 Jan 2025 - 19 Jan 2025

Device Serial	Monitoring Points
HEX-000104	-
HEX-000330	Western Hoarding Church St
HEX-000596	New Macquarie Lane Hoarding



Noise Monitoring Statistics

New Macquarie Lane Hoa...		
62 dB	DAY	L_{Aeq}
63 dB	EVENING	L_{Aeq}
57 dB	NIGHT	L_{Aeq}

Average value across selected time period

Western Hoarding Church...		
60 dB	DAY	L_{Aeq}
58 dB	EVENING	L_{Aeq}
54 dB	NIGHT	L_{Aeq}

Average value across selected time period

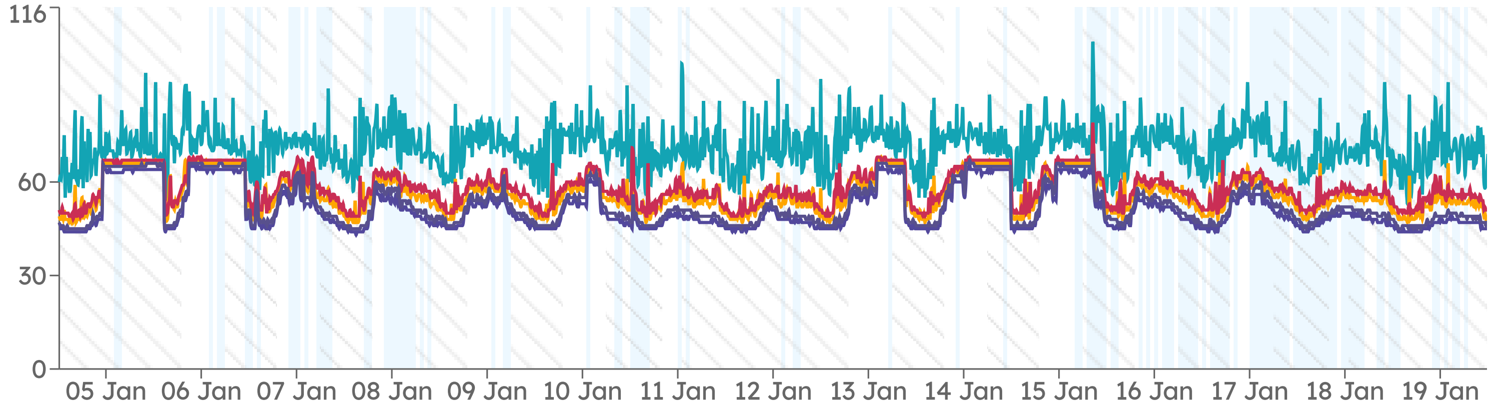
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

New Macquarie Lane Hoarding

05 Jan 2025 - 19 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

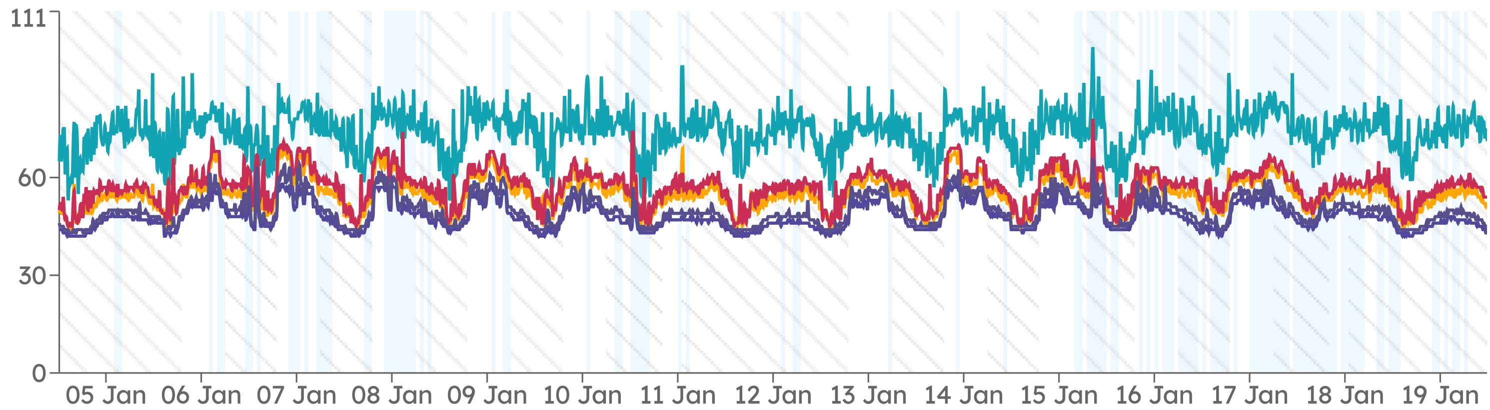
Potentially weather affected periods

Out of Hours

Western Hoarding Church St

05 Jan 2025 - 19 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000104	-	SiteHive Hexanode	15 Aug 2024	15 Aug 2026
HEX-000330	Western Hoarding Church St	SiteHive Hexanode	13 Jun 2024	13 Jun 2026
HEX-000596	New Macquarie Lane Hoarding	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

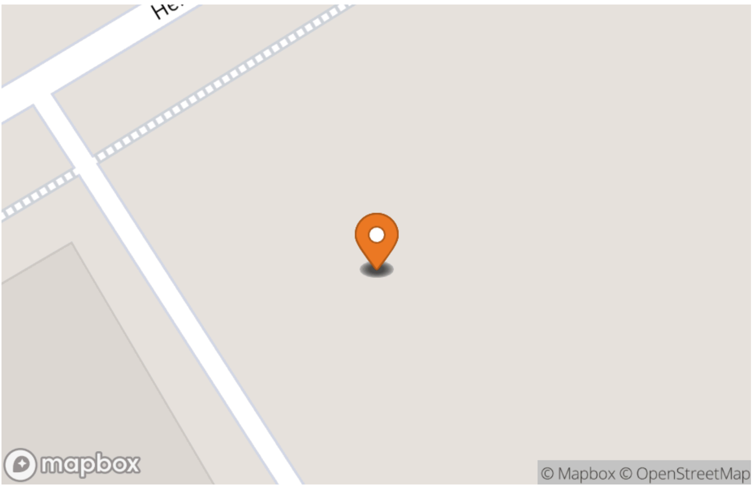
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 20Jul24_3Aug24 Sydney Olympic Park

Monitoring Devices

Date Range 20 Jul 2024 - 03 Aug 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	Station Box Northwest
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

69 dB — DAY L_{Aeq}

63 dB — EVENING L_{Aeq}

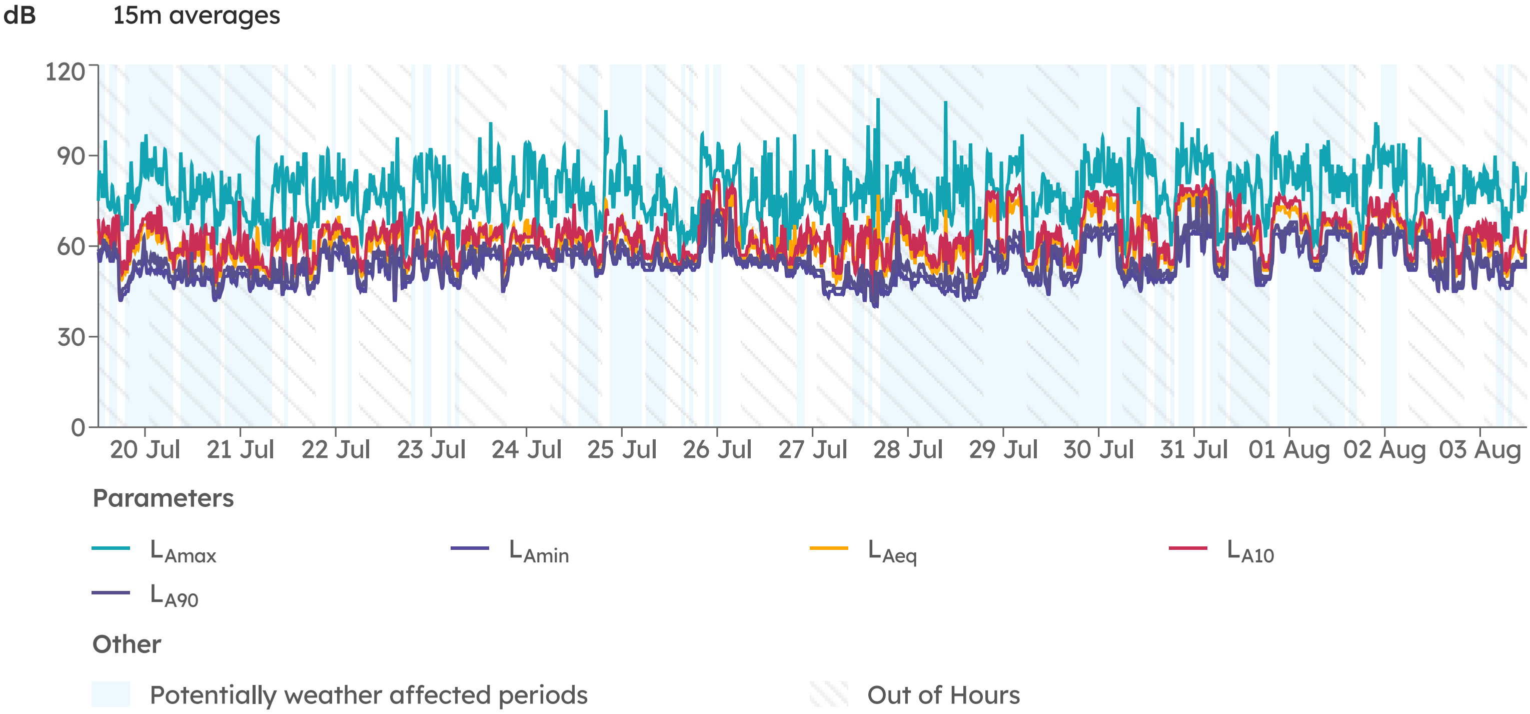
62 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest 20 Jul 2024 - 03 Aug 2024



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	Station Box Northwest	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

SiteHive

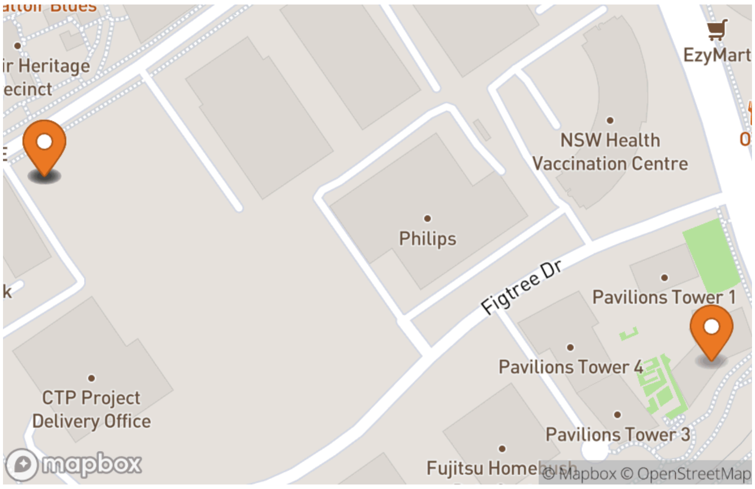
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 4Aug24_17Aug24 Sydney Olympic Park

Monitoring Devices

Date Range 04 Aug 2024 - 17 Aug 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	Station Box Northwest, 2B Fig Tree, SOP



Noise Monitoring Statistics

Station Box Northwest

Value	Period	Metric
69 dB	DAY	L_{Aeq}
64 dB	EVENING	L_{Aeq}
64 dB	NIGHT	L_{Aeq}

Average value across selected time period

2B Fig Tree, SOP

Value	Period	Metric
-- dB	DAY	L_{Aeq}
-- dB	EVENING	L_{Aeq}
-- dB	NIGHT	L_{Aeq}

Average value across selected time period

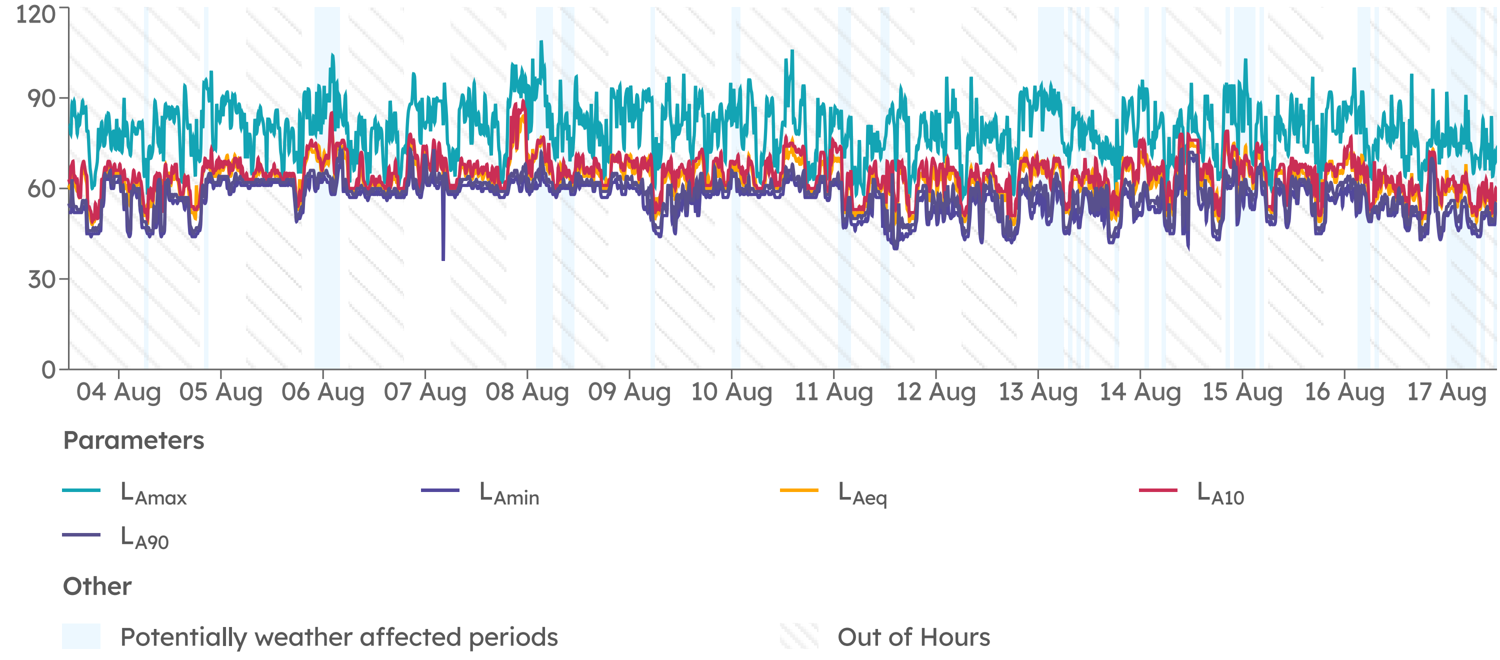
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest

04 Aug 2024 - 17 Aug 2024

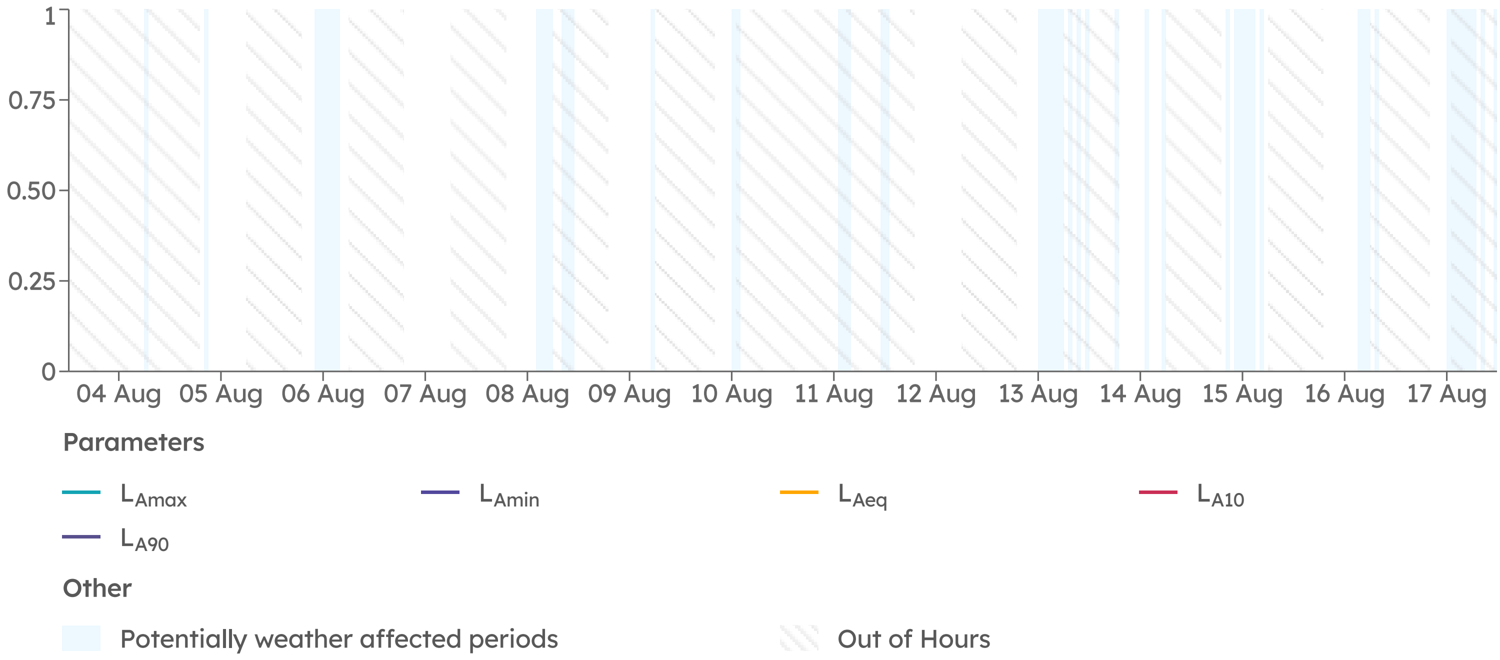
dB 15m averages



2B Fig Tree, SOP

04 Aug 2024 - 17 Aug 2024

dB 15m averages



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	Station Box Northwest, 2B Fig Tree, SOP	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

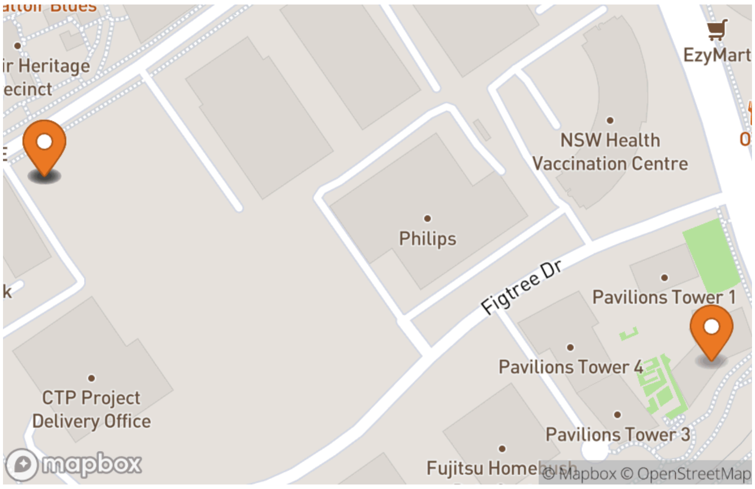
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 18Aug24_31Aug24 Sydney Olympic Park

Monitoring Devices

Date Range 18 Aug 2024 - 31 Aug 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	2B Fig Tree, SOP



Noise Monitoring Statistics

Station Box Northwest

Period	Value	Metric
DAY	70 dB	L_{Aeq}
EVENING	62 dB	L_{Aeq}
NIGHT	61 dB	L_{Aeq}

Average value across selected time period

2B Fig Tree, SOP

Period	Value	Metric
DAY	-- dB	L_{Aeq}
EVENING	-- dB	L_{Aeq}
NIGHT	-- dB	L_{Aeq}

Average value across selected time period

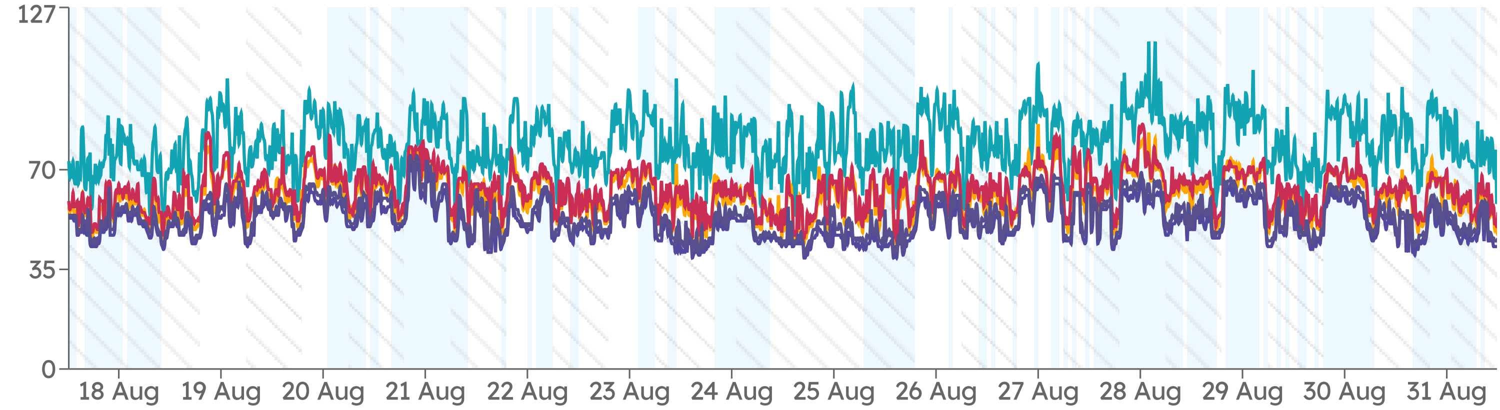
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

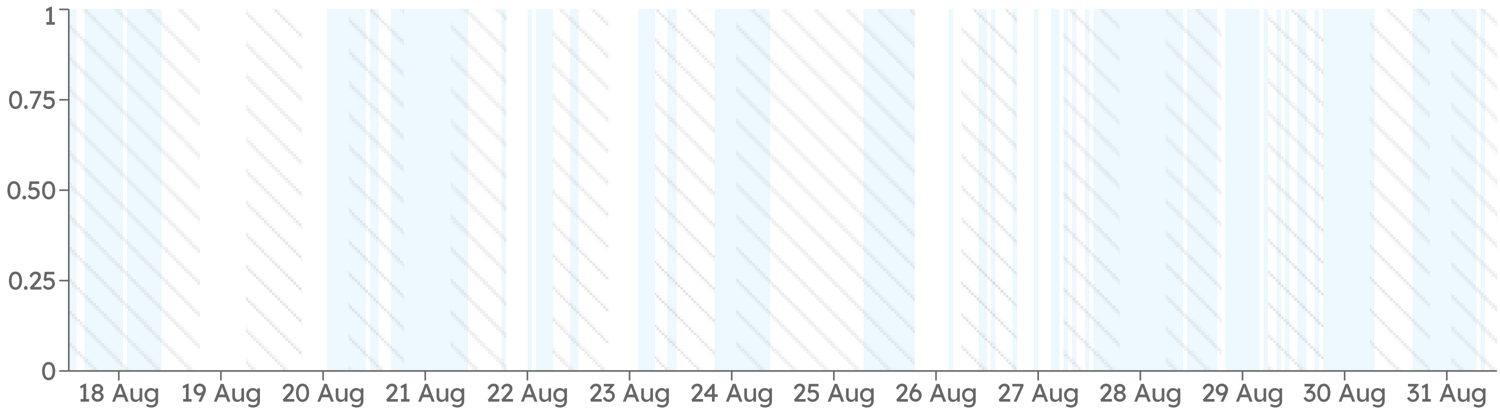
Potentially weather affected periods

Out of Hours

2B Fig Tree, SOP

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	2B Fig Tree, SOP	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

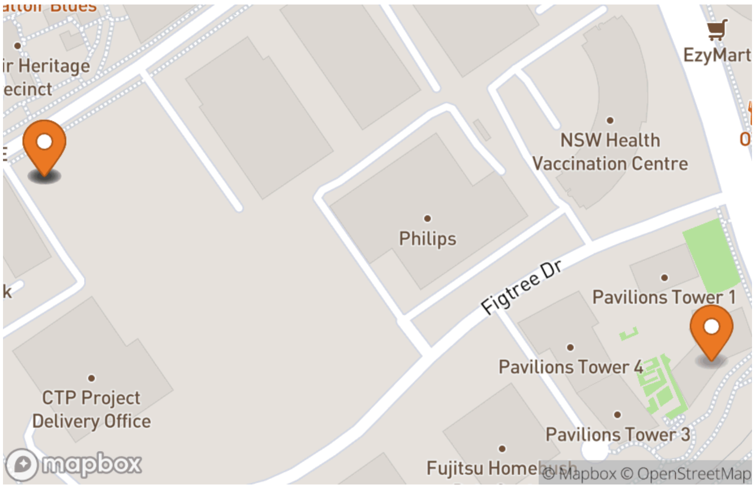
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 1Sept24_14Sept24 Sydney Olympic Park

Monitoring Devices

Date Range 01 Sep 2024 - 14 Sep 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	2B Fig Tree, SOP



Noise Monitoring Statistics

Station Box Northwest

Value	Period	Metric
70 dB	DAY	L_{Aeq}
61 dB	EVENING	L_{Aeq}
60 dB	NIGHT	L_{Aeq}

Average value across selected time period

2B Fig Tree, SOP

Value	Period	Metric
-- dB	DAY	L_{Aeq}
-- dB	EVENING	L_{Aeq}
-- dB	NIGHT	L_{Aeq}

Average value across selected time period

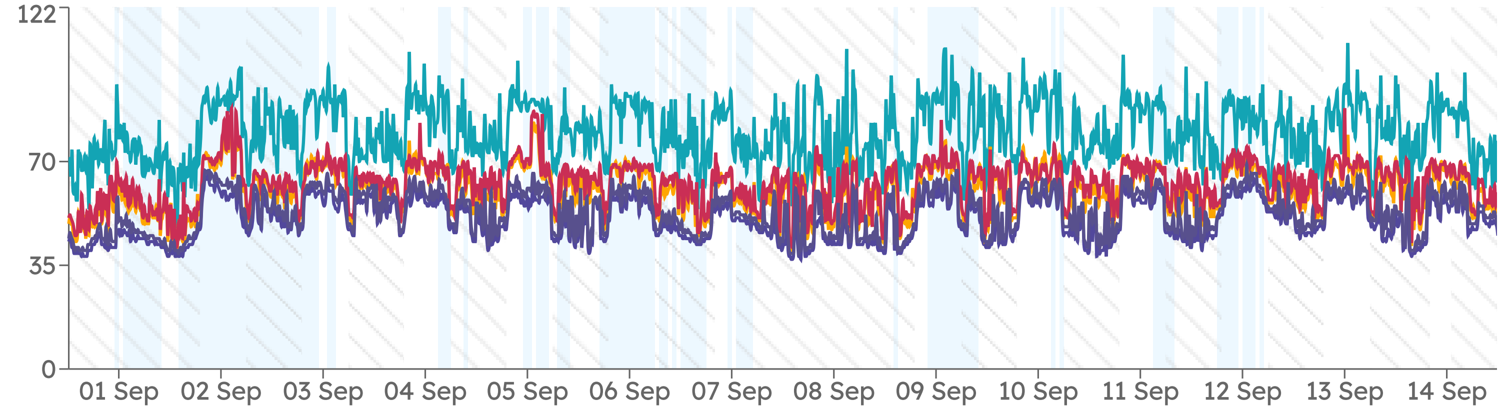
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

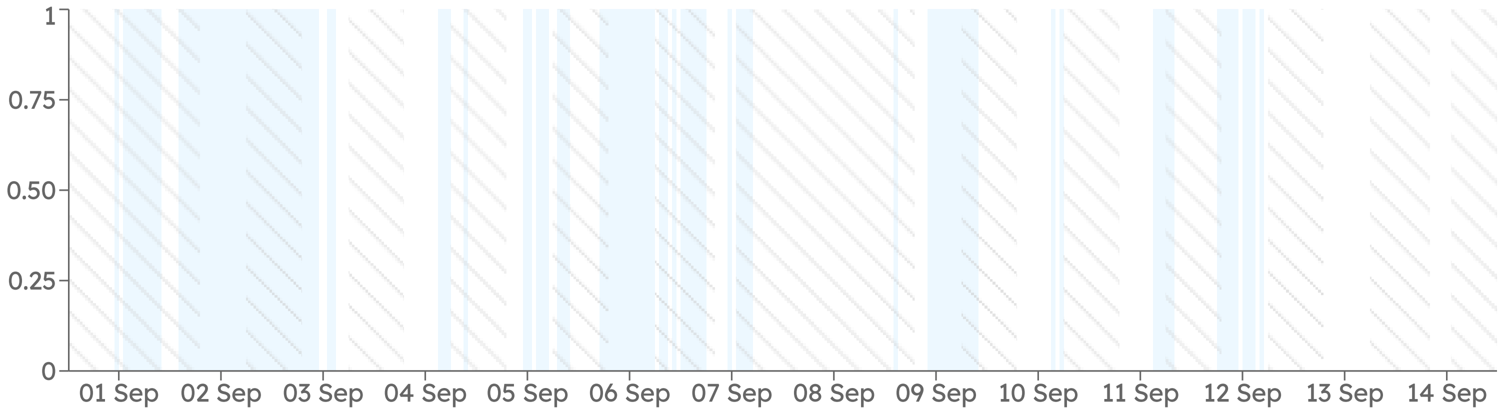
Other

Potentially weather affected periods   Out of Hours

2B Fig Tree, SOP

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods   Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	2B Fig Tree, SOP	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

SiteHive

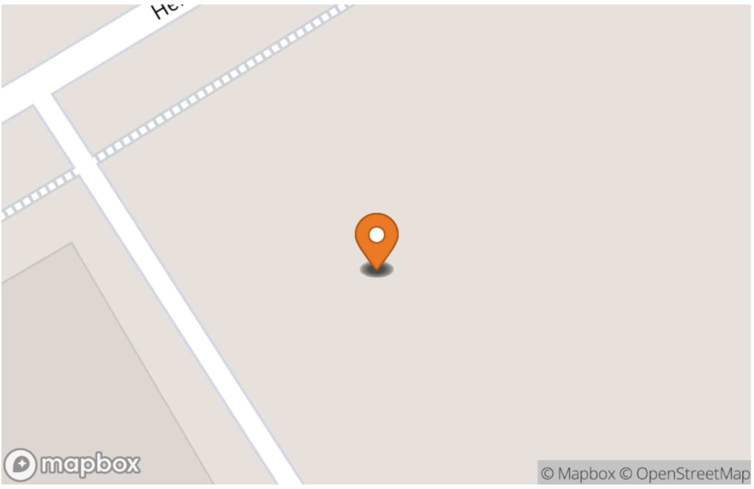
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 15Sept24_28Sept24 Sydney Olympic Park

Monitoring Devices

Date Range 15 Sep 2024 - 28 Sep 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

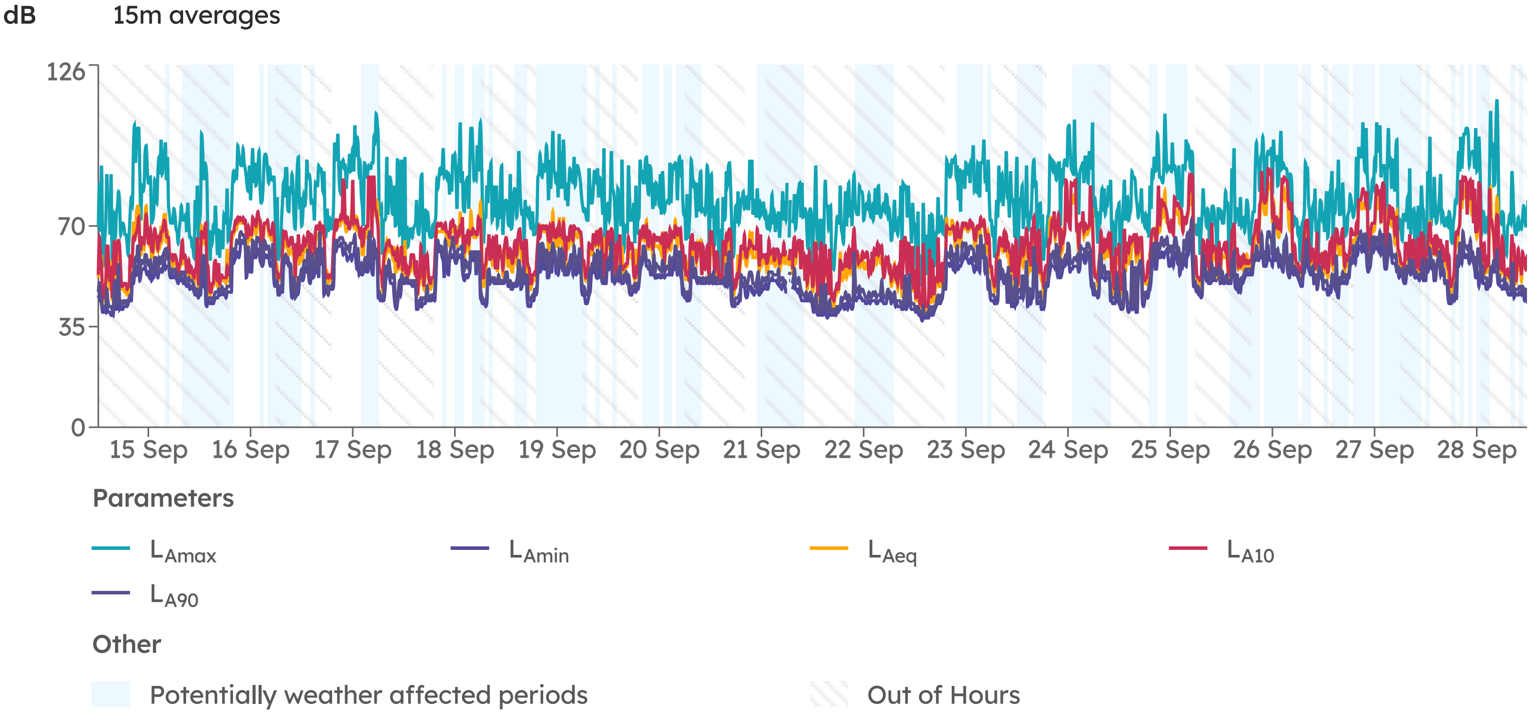
Value	Period	Metric
73 dB	DAY	L_{Aeq}
61 dB	EVENING	L_{Aeq}
60 dB	NIGHT	L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest **15 Sep 2024 - 28 Sep 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

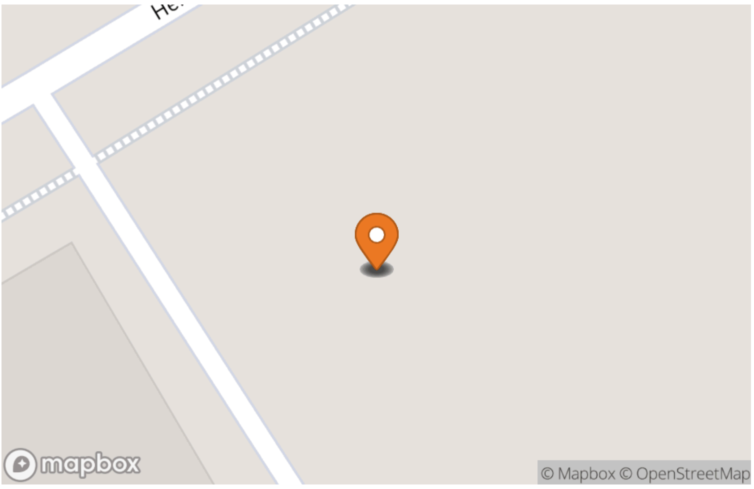
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 29Sept24_12Oct24 Sydney Olympic Park

Monitoring Devices

Date Range 29 Sep 2024 - 12 Oct 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

Value	Period
68 dB	DAY L_{Aeq}
61 dB	EVENING L_{Aeq}
61 dB	NIGHT L_{Aeq}

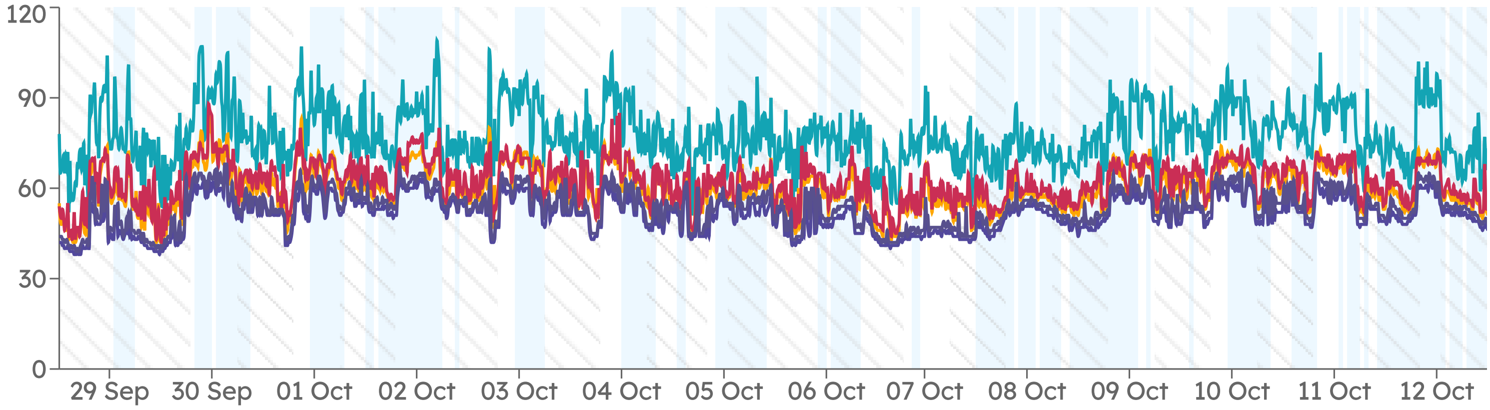
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest 29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

SiteHive

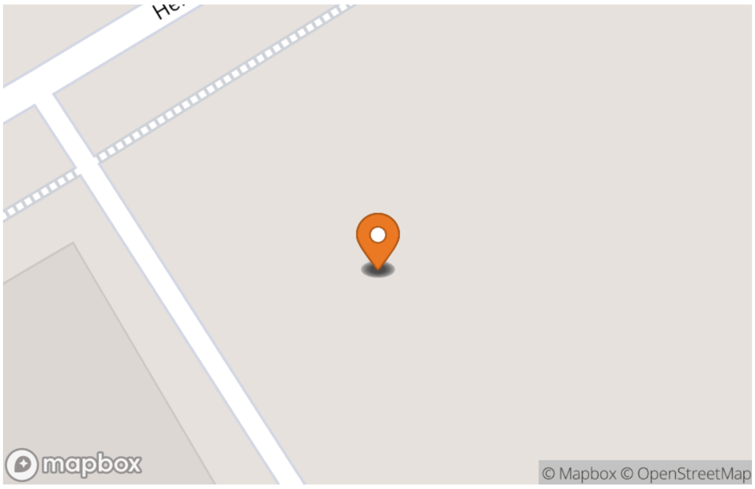
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 13 Oct24_26Oct24 Sydney Olympic Park

Monitoring Devices

Date Range 13 Oct 2024 - 26 Oct 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

68 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

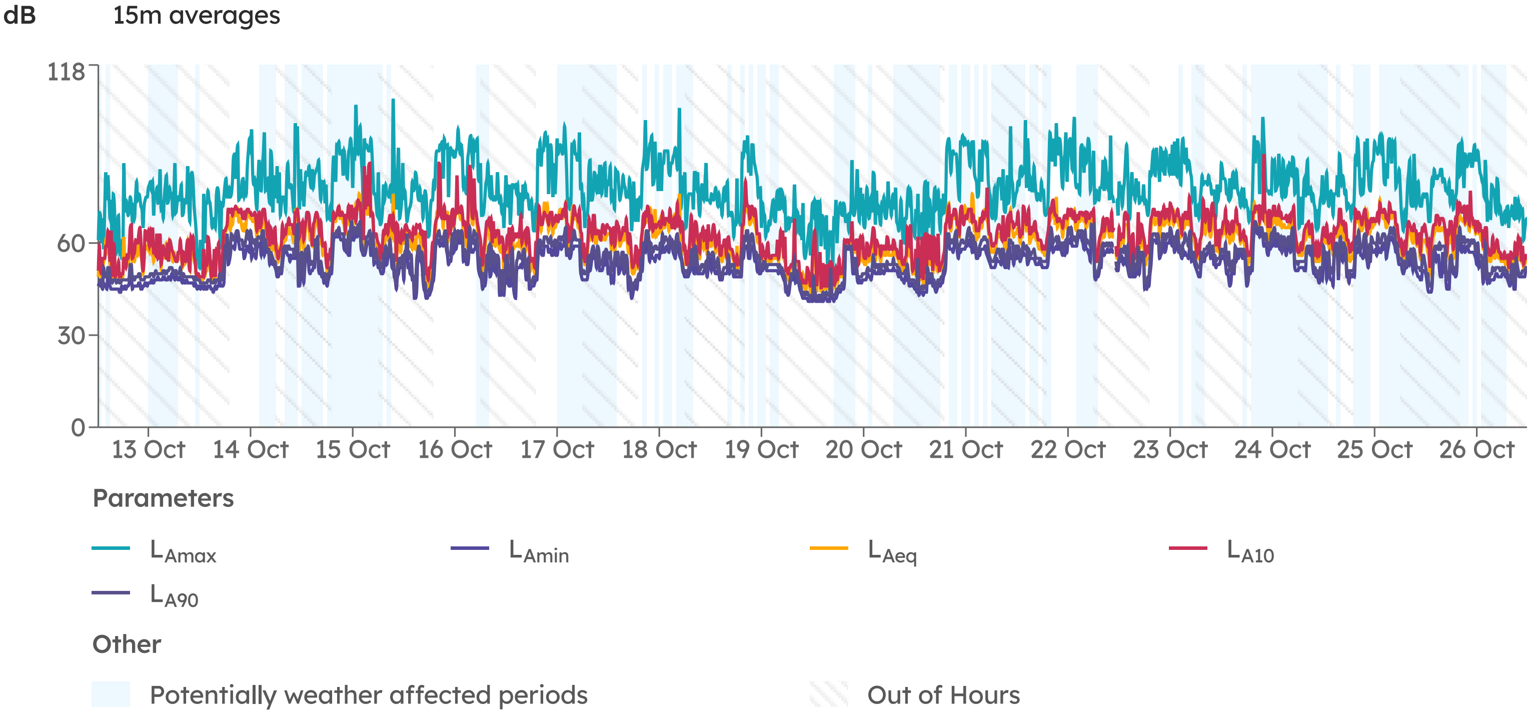
61 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest **13 Oct 2024 - 26 Oct 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

SiteHive

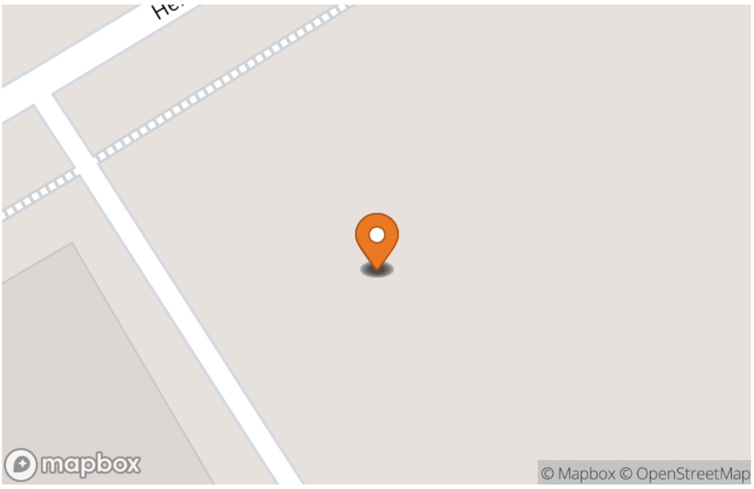
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 27Oct24_9Nov24 Sydney Olympic Park

Monitoring Devices

Date Range 27 Oct 2024 - 09 Nov 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

69 dB — DAY L_{Aeq}

62 dB — EVENING L_{Aeq}

63 dB — NIGHT L_{Aeq}

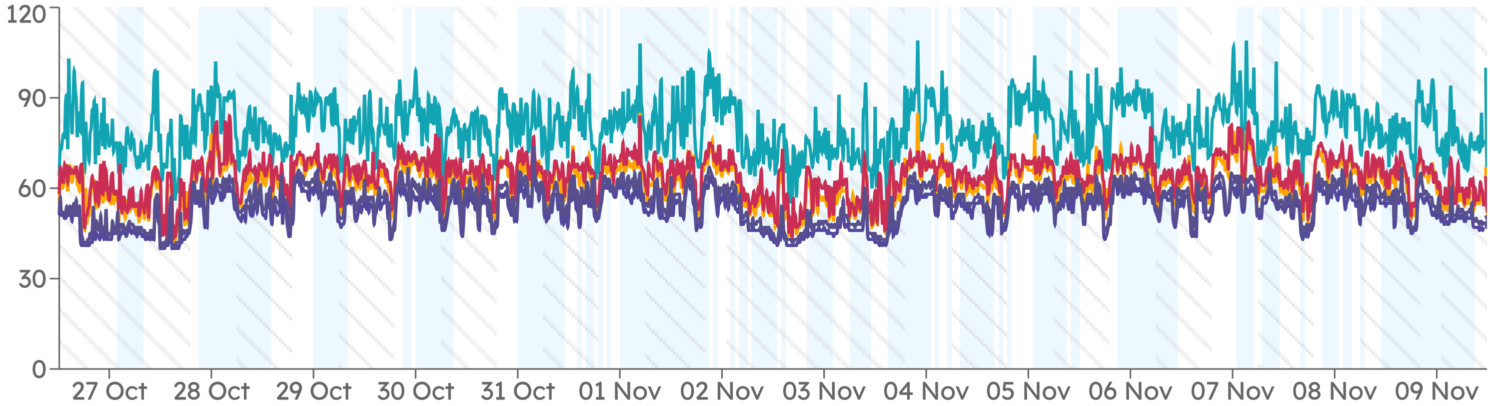
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest — **27 Oct 2024 - 09 Nov 2024**

dB 15m averages



Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

Other

- Potentially weather affected periods
- Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

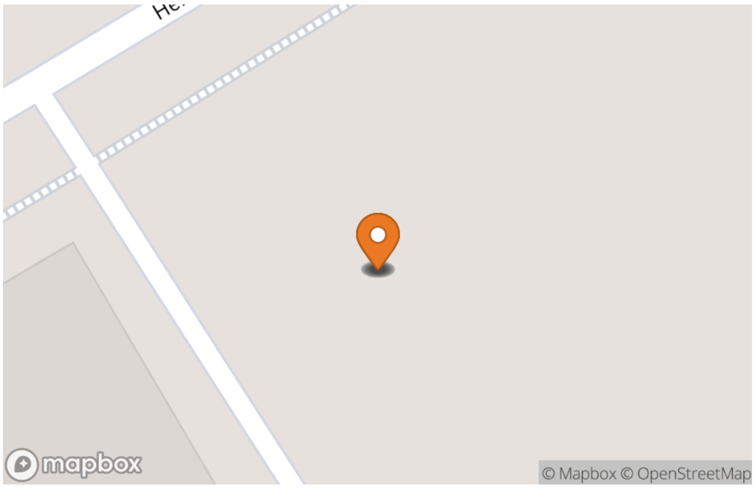
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 10Nov24_23Nov24 Sydney Olympic Park

Monitoring Devices

Date Range 10 Nov 2024 - 23 Nov 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

68 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

61 dB — NIGHT L_{Aeq}

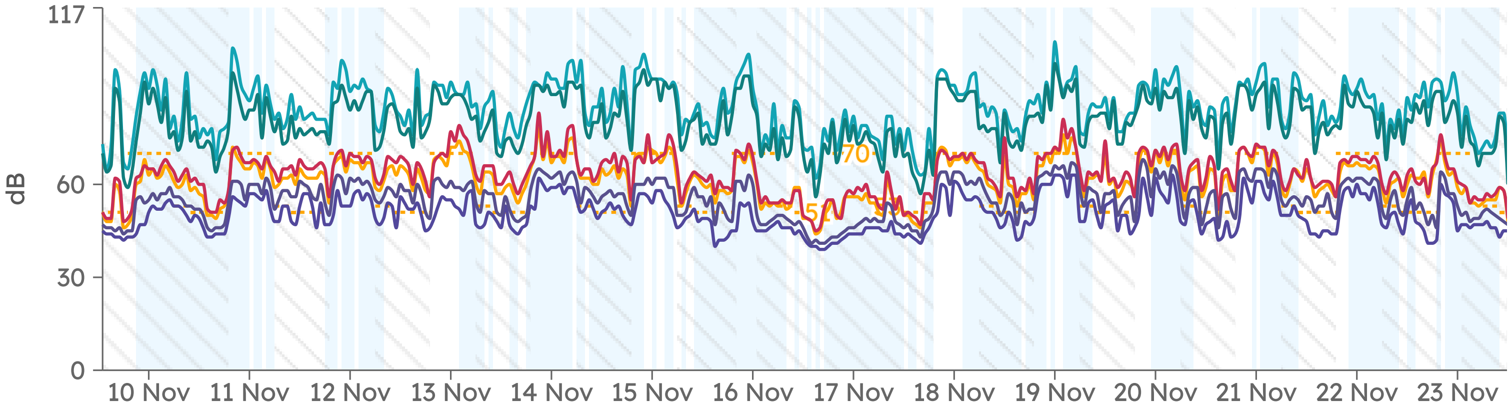
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Sound Levels | Station Box Northwest

1h averages, 10 Nov 2024 - 23 Nov 2024



Parameters

- L_{Amax}
- L_{ASmax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

Thresholds

- 70 Day Noise limit
- 53 Evening Noise limit
- 51 Night Noise limit

Other

- Potentially weather affected periods
- Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025

Gamuda Laing O'Rourke

SiteHive

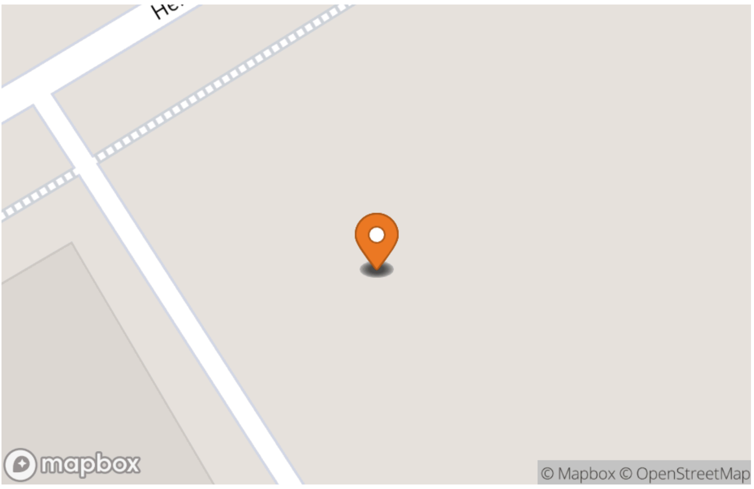
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 24Nov24_7Dec24 Sydney Olympic Park

Monitoring Devices

Date Range 24 Nov 2024 - 07 Dec 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

65 dB — DAY L_{Aeq}

60 dB — EVENING L_{Aeq}

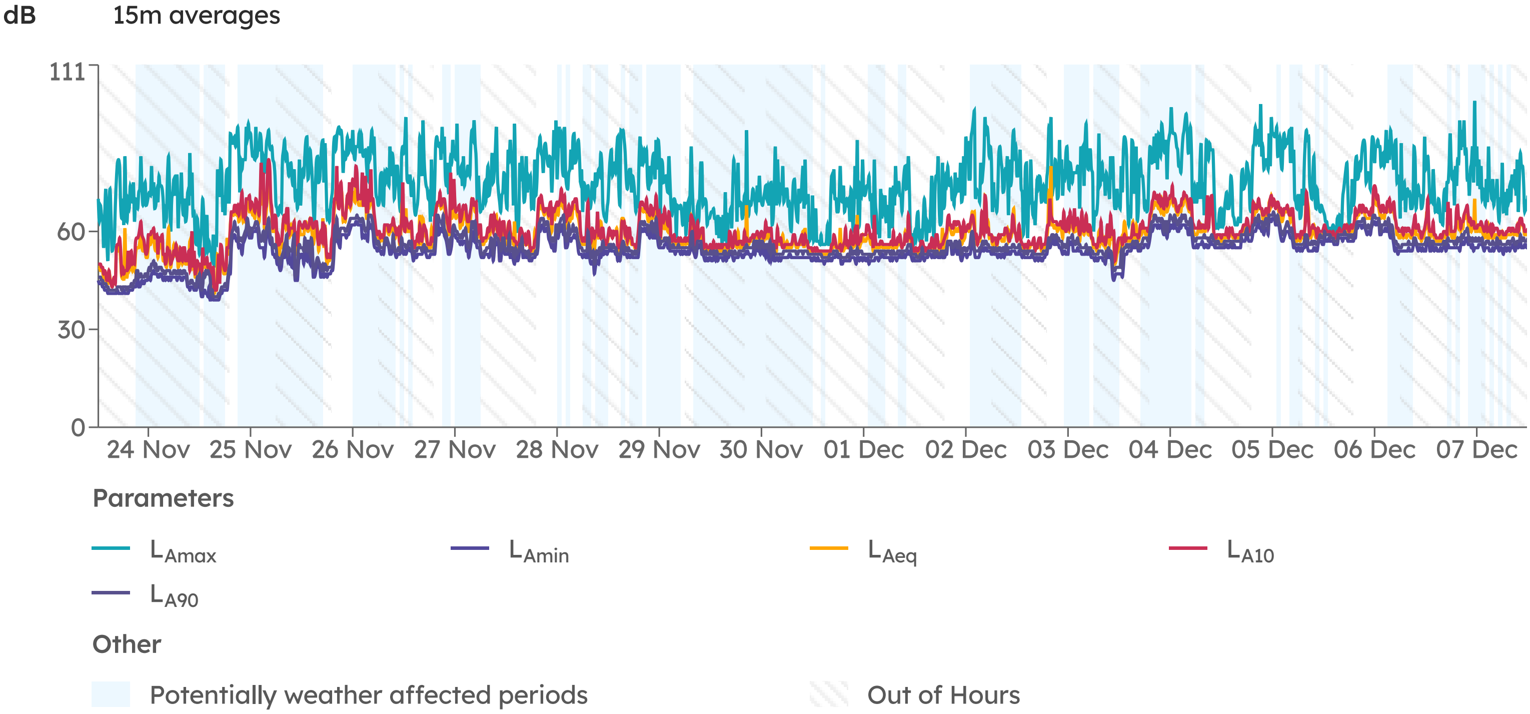
58 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest 24 Nov 2024 - 07 Dec 2024



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

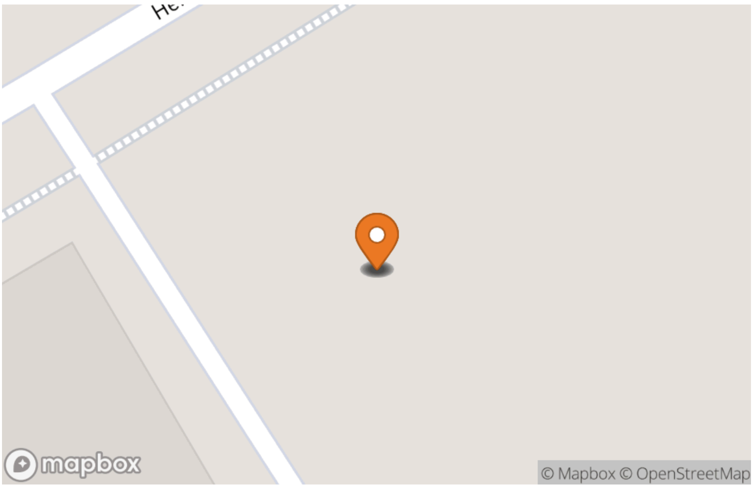
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 8Dec24_21Dec24 Sydney Olympic Park

Monitoring Devices

Date Range 08 Dec 2024 - 21 Dec 2024

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

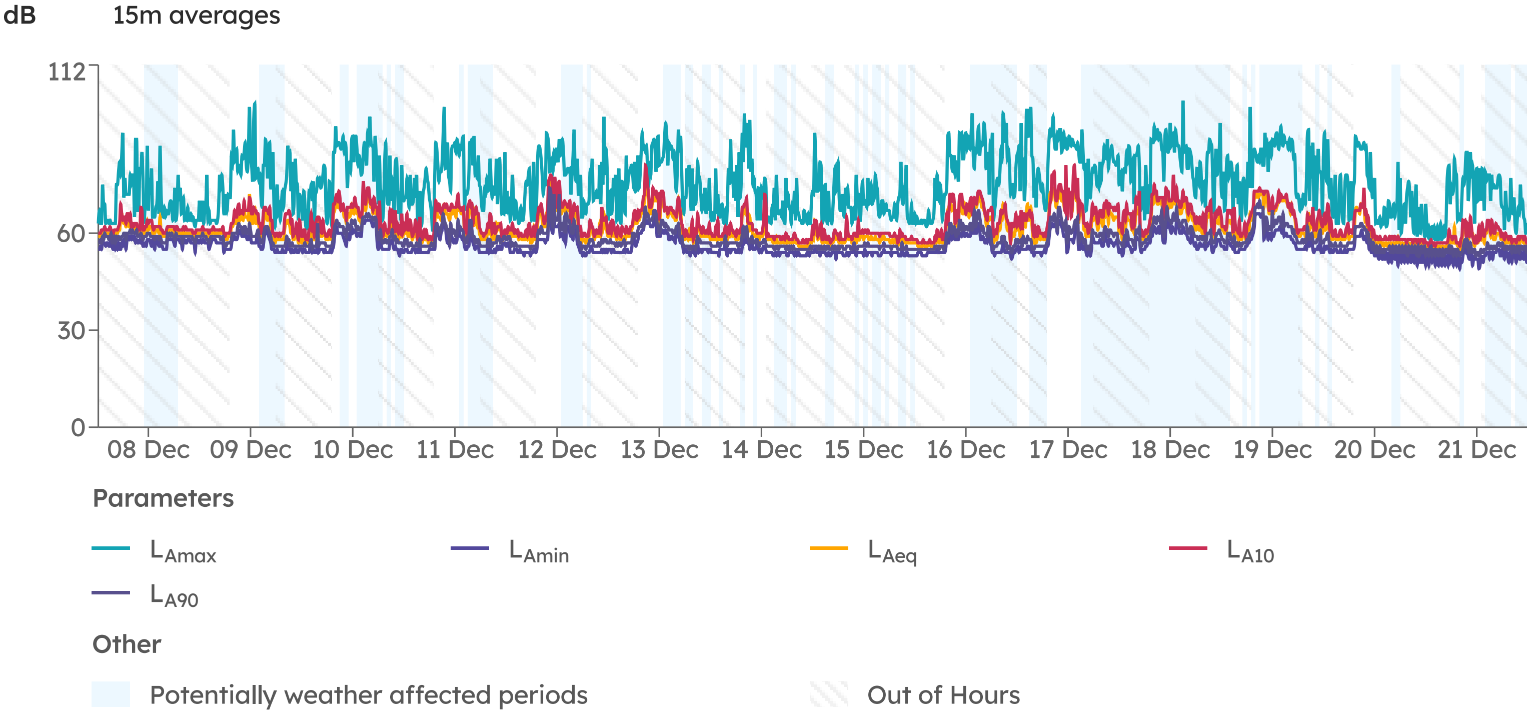
Value	Period	Metric
67 dB	DAY	L_{Aeq}
61 dB	EVENING	L_{Aeq}
60 dB	NIGHT	L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest — **08 Dec 2024 - 21 Dec 2024**



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O’Rourke

SiteHive

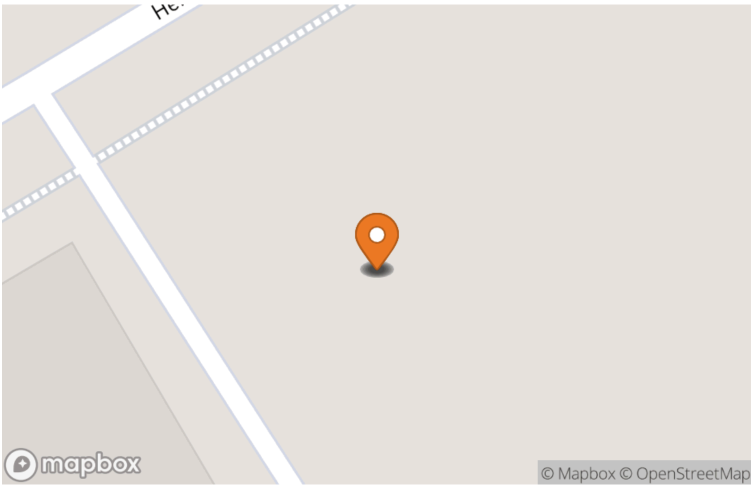
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 22Dec24_4Jan25 Sydney Olympic Park

Monitoring Devices

Date Range 22 Dec 2024 - 04 Jan 2025

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

58 dB — DAY L_{Aeq}

58 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

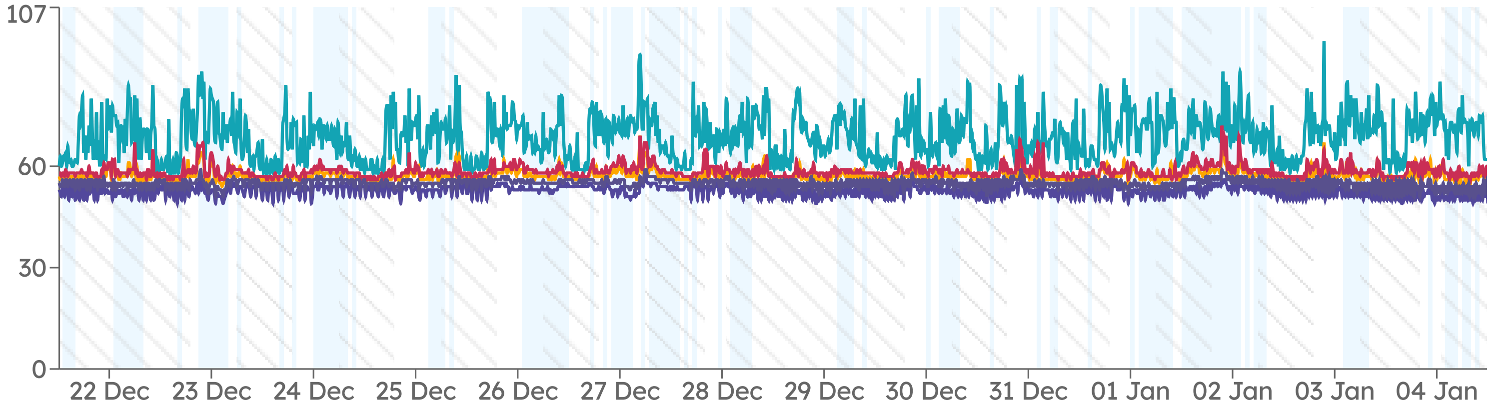
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest **22 Dec 2024 - 04 Jan 2025**

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

SiteHive

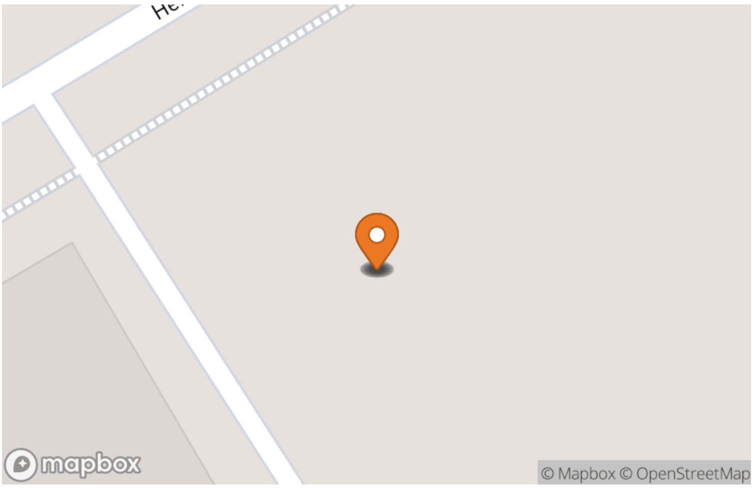
Sydney Metro West WTP Olympic Park

Unattended Noise Monitoring 5Jan25_18Jan25 Sydney Olympic Park

Monitoring Devices

Date Range 05 Jan 2025 - 18 Jan 2025

Device Serial	Monitoring Points
HEX-000420	Station Box Northwest
HEX-000578	-
HEX-000615	-



Noise Monitoring Statistics

Station Box Northwest

67 dB — DAY L_{Aeq}

63 dB — EVENING L_{Aeq}

62 dB — NIGHT L_{Aeq}

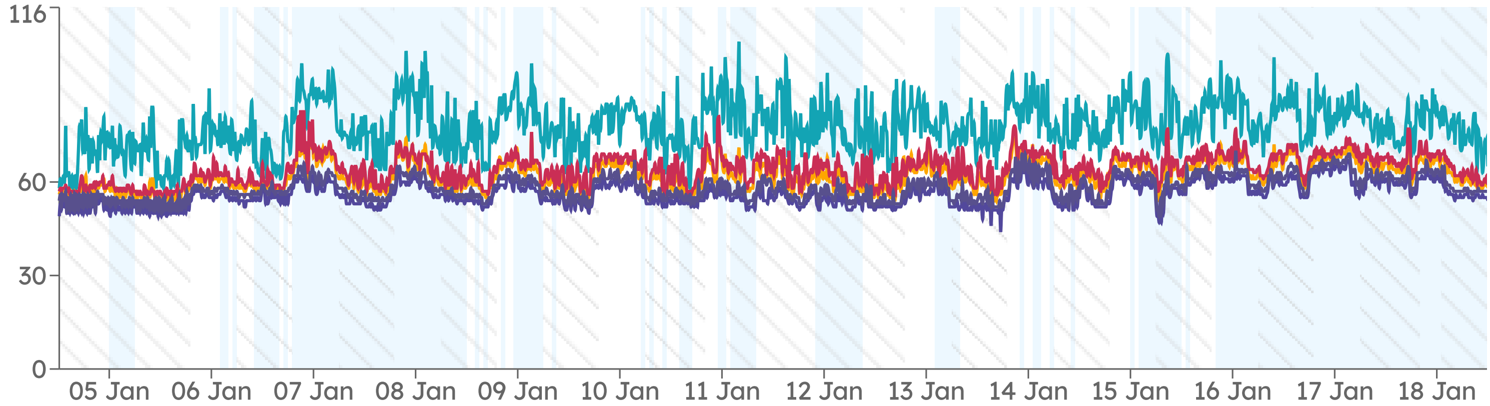
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Station Box Northwest 05 Jan 2025 - 18 Jan 2025

dB 15m averages



Parameters

- L_{Amax}
- L_{Amin}
- L_{Aeq}
- L_{A10}
- L_{A90}

Other

- Potentially weather affected periods
- Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000420	Station Box Northwest	SiteHive Hexanode	12 Dec 2023	12 Dec 2025
HEX-000578	-	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000615	-	SiteHive Hexanode	03 Jun 2024	03 Jun 2026

Gamuda Laing O'Rourke

SiteHive

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 20Jul24_3Aug24 Westmead

Monitoring Devices

Date Range 20 Jul 2024 - 03 Aug 2024

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street
HEX-000445	-
HEX-000567	Hassall Street, Hawksbury Avenue
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

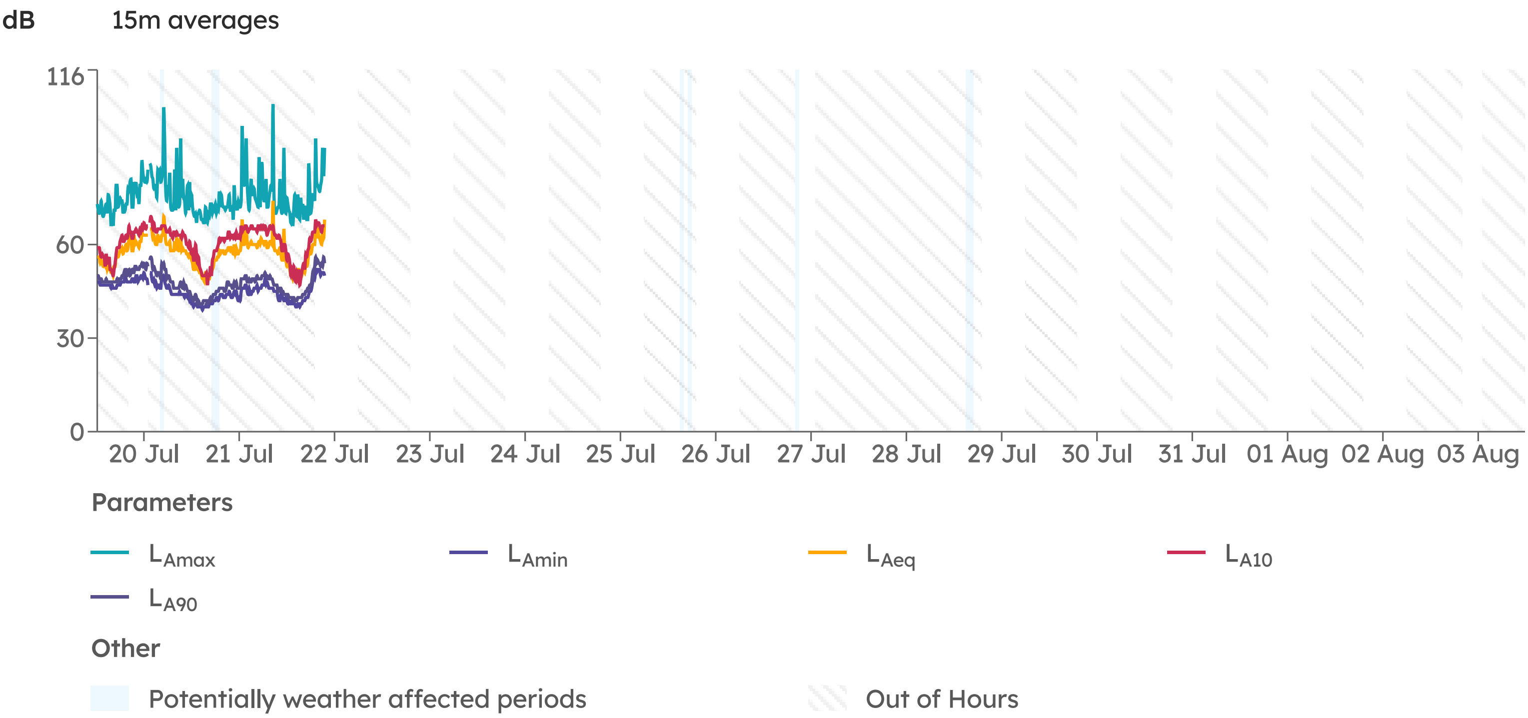
	MSF 3in1 Pod	Hassall Street	Hawksbury Avenue
DAY L_{Aeq}	62 dB	63 dB	68 dB
EVENING L_{Aeq}	62 dB	62 dB	66 dB
NIGHT L_{Aeq}	55 dB	59 dB	62 dB
	Average value across selected time period	Average value across selected time period	Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

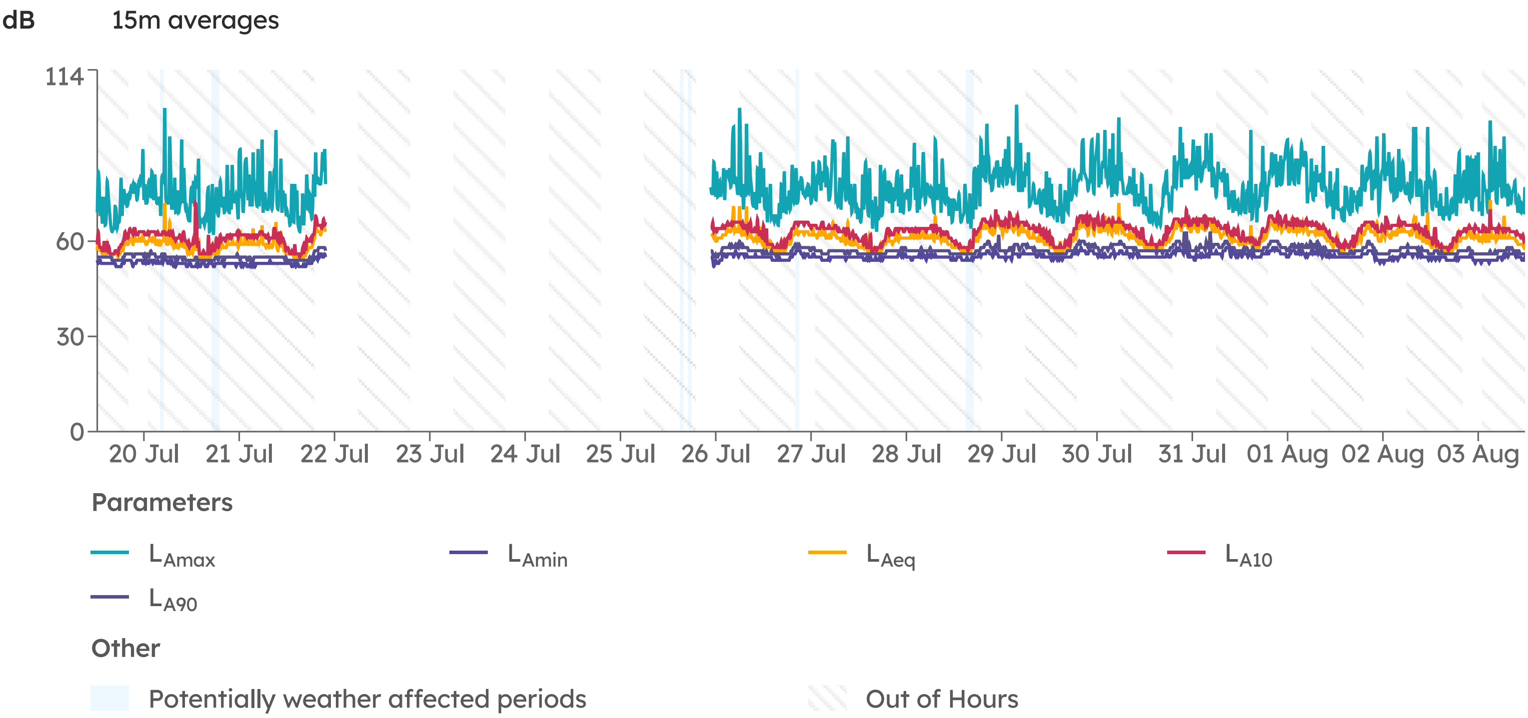
MSF 3in1 Pod

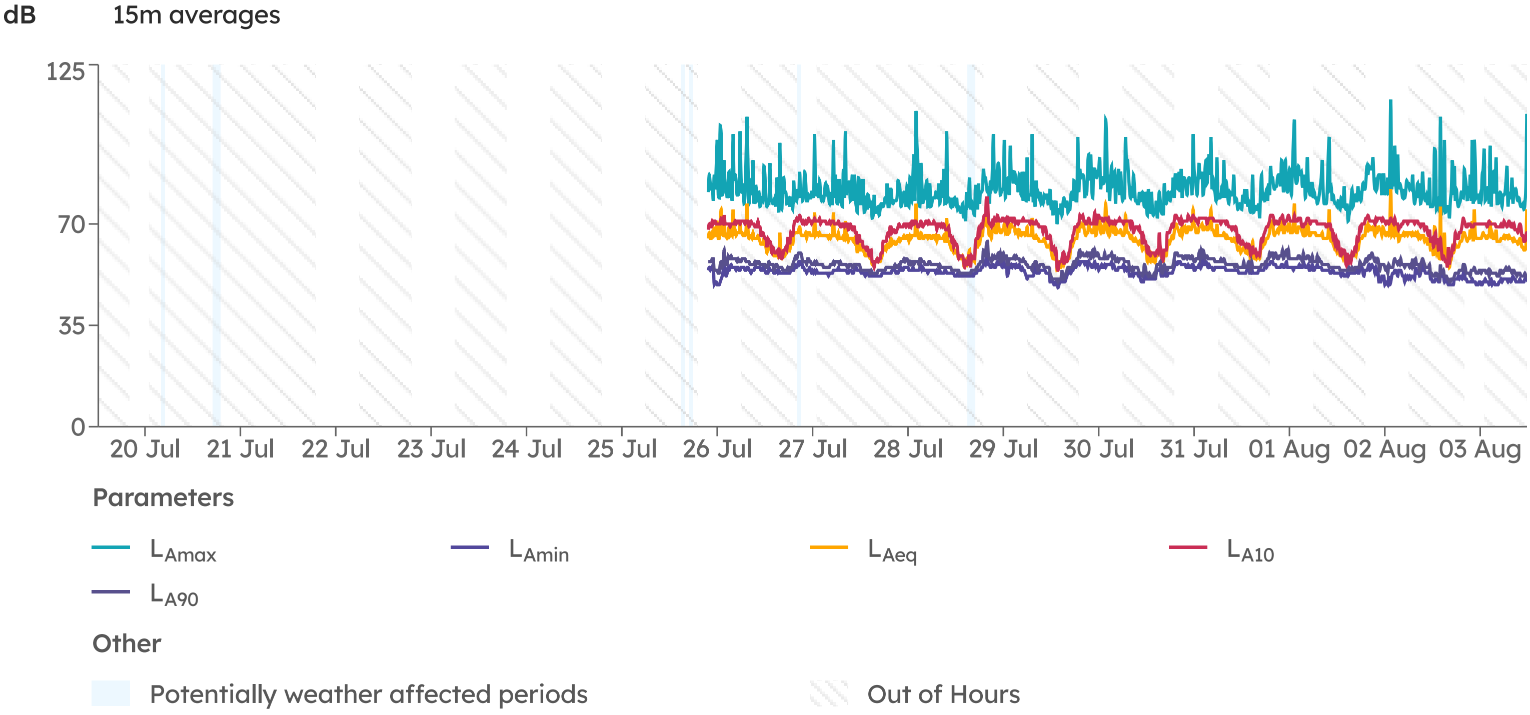
20 Jul 2024 - 03 Aug 2024



Hassall Street

20 Jul 2024 - 03 Aug 2024





Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000007	MSF 3in1 Pod	SiteHive Hexanode	02 Oct 2024	02 Oct 2026
HEX-000020	Hassall Street	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street, Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 4Aug24_17Aug24 Westmead

Monitoring Devices

Date Range 04 Aug 2024 - 17 Aug 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

Value	Period	Metric
64 dB	DAY	L_{Aeq}
62 dB	EVENING	L_{Aeq}
60 dB	NIGHT	L_{Aeq}

Average value across selected time period

Hawksbury Avenue

Value	Period	Metric
69 dB	DAY	L_{Aeq}
66 dB	EVENING	L_{Aeq}
63 dB	NIGHT	L_{Aeq}

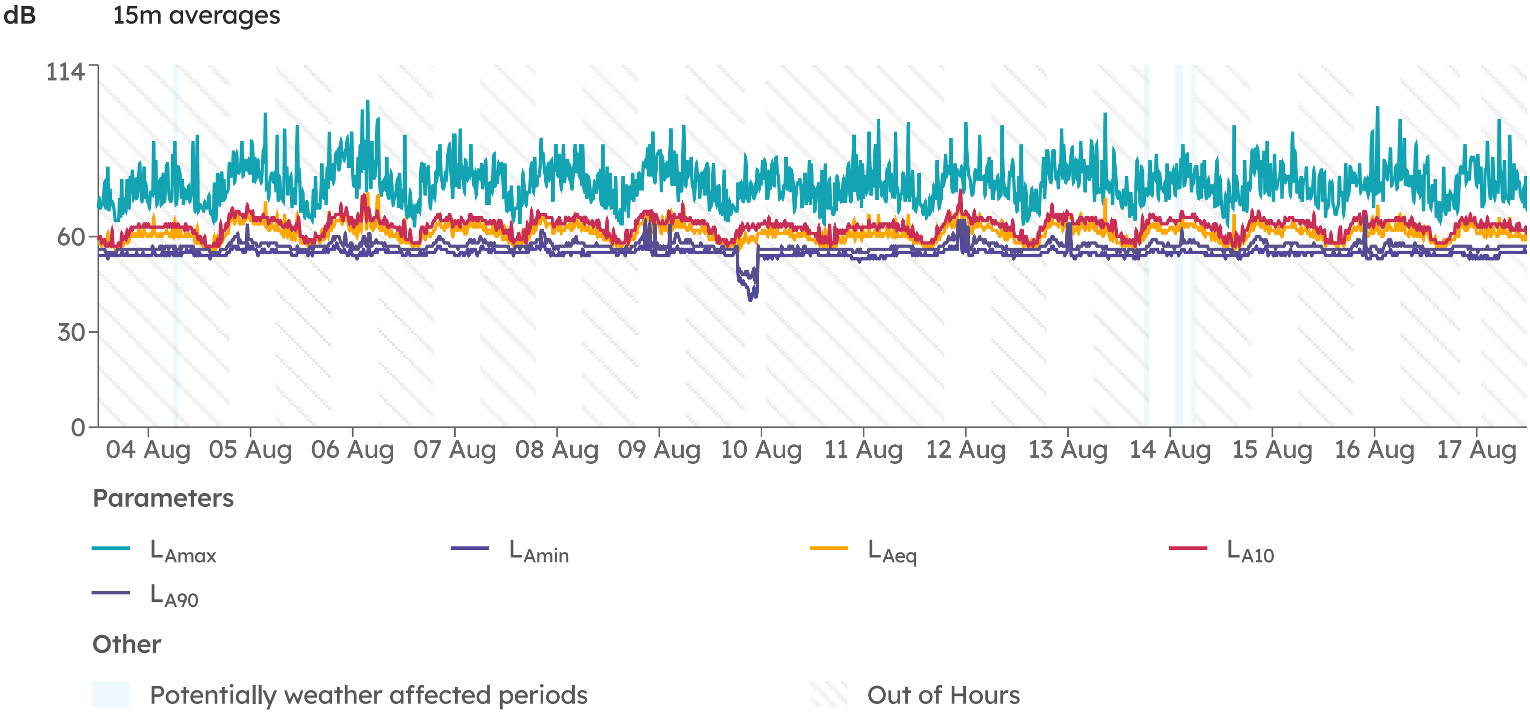
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

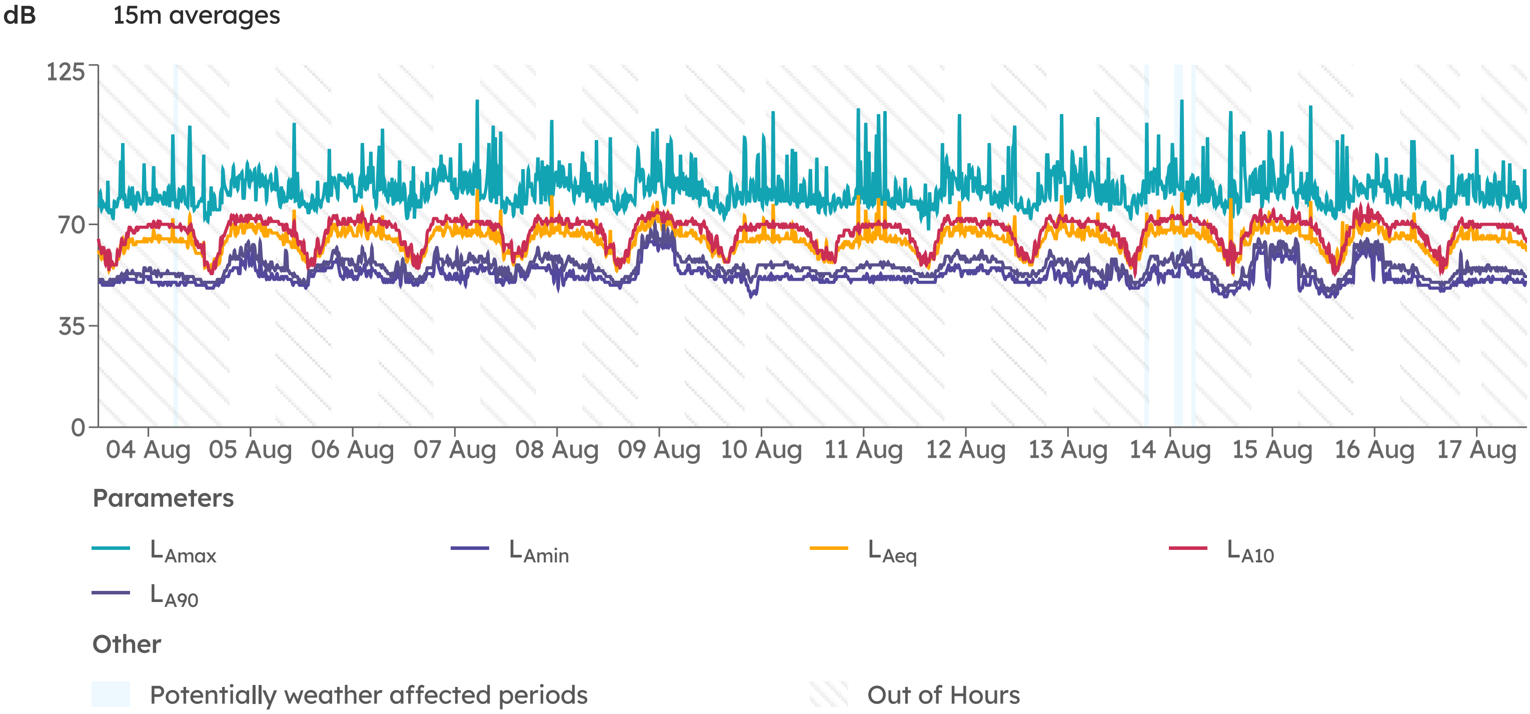
Hassall Street

04 Aug 2024 - 17 Aug 2024



Hawksbury Avenue

04 Aug 2024 - 17 Aug 2024



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 18Aug24_31Aug24 Westmead

Monitoring Devices

Date Range 18 Aug 2024 - 31 Aug 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

Value	Period
65 dB	DAY L_{Aeq}
62 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

Value	Period
69 dB	DAY L_{Aeq}
66 dB	EVENING L_{Aeq}
62 dB	NIGHT L_{Aeq}

Average value across selected time period

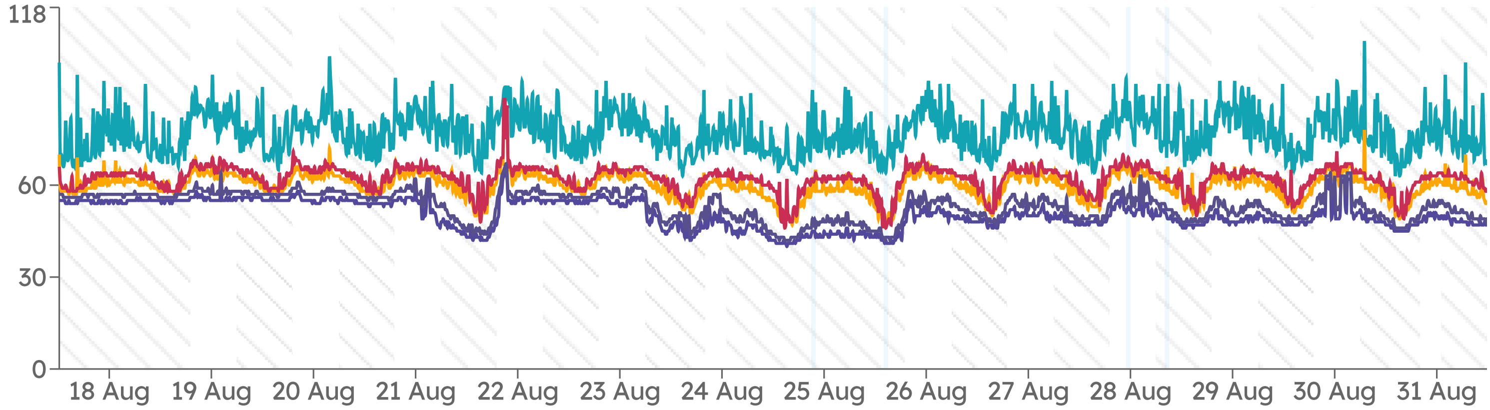
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

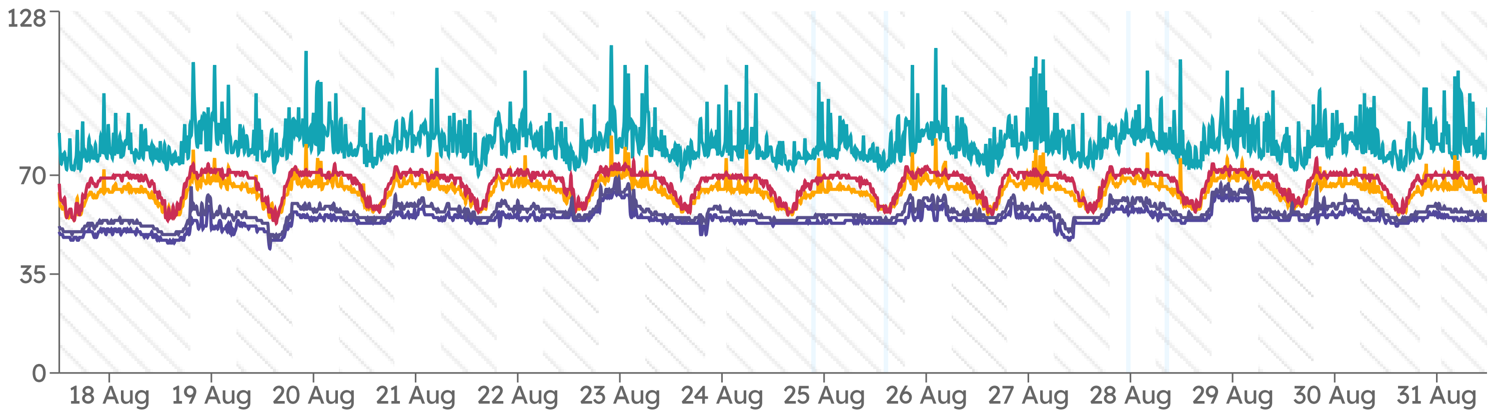
Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue

18 Aug 2024 - 31 Aug 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 1Sep24_14Sep24 Westmead

Monitoring Devices

Date Range 01 Sep 2024 - 14 Sep 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

Value	Period	Metric
63 dB	DAY	L_{Aeq}
61 dB	EVENING	L_{Aeq}
58 dB	NIGHT	L_{Aeq}

Average value across selected time period

Hawksbury Avenue

Value	Period	Metric
68 dB	DAY	L_{Aeq}
67 dB	EVENING	L_{Aeq}
62 dB	NIGHT	L_{Aeq}

Average value across selected time period

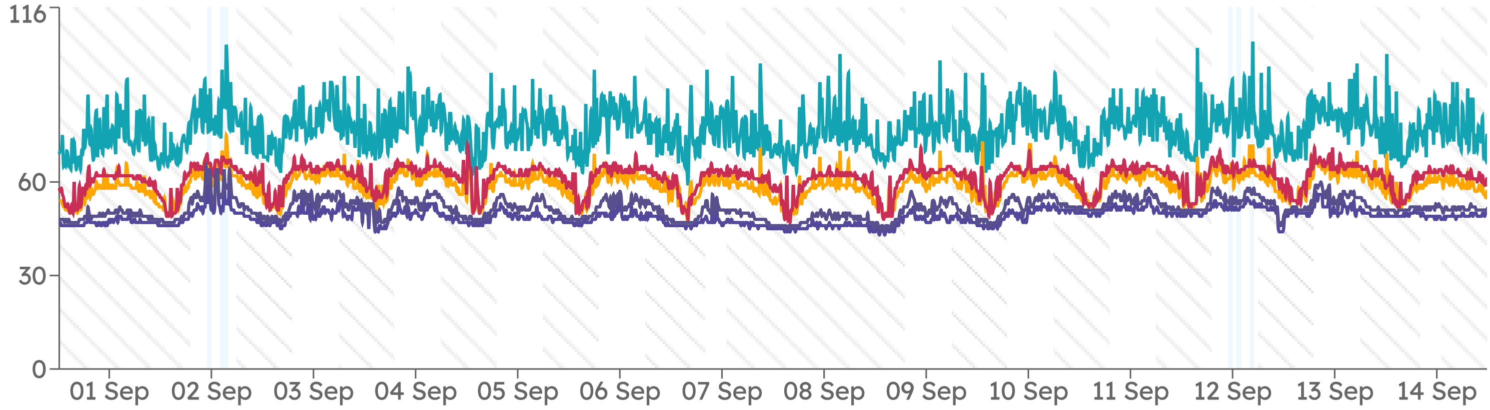
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

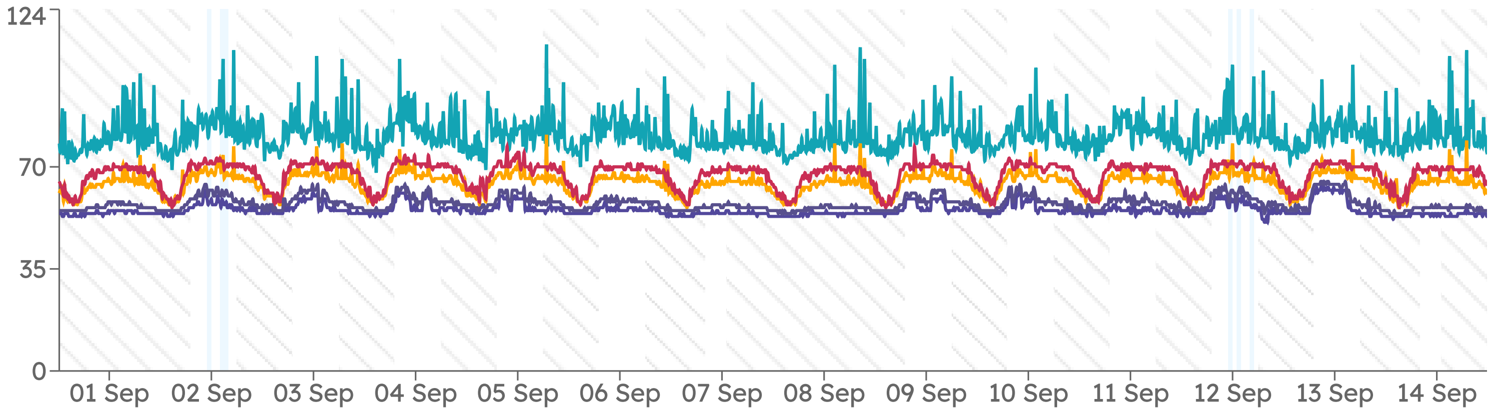
Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue

01 Sep 2024 - 14 Sep 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 15Sep24_28Sep24 Westmead

Monitoring Devices

Date Range 01 Sep 2024 - 14 Sep 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

Value	Period
63 dB	DAY L_{Aeq}
61 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

Value	Period
68 dB	DAY L_{Aeq}
67 dB	EVENING L_{Aeq}
62 dB	NIGHT L_{Aeq}

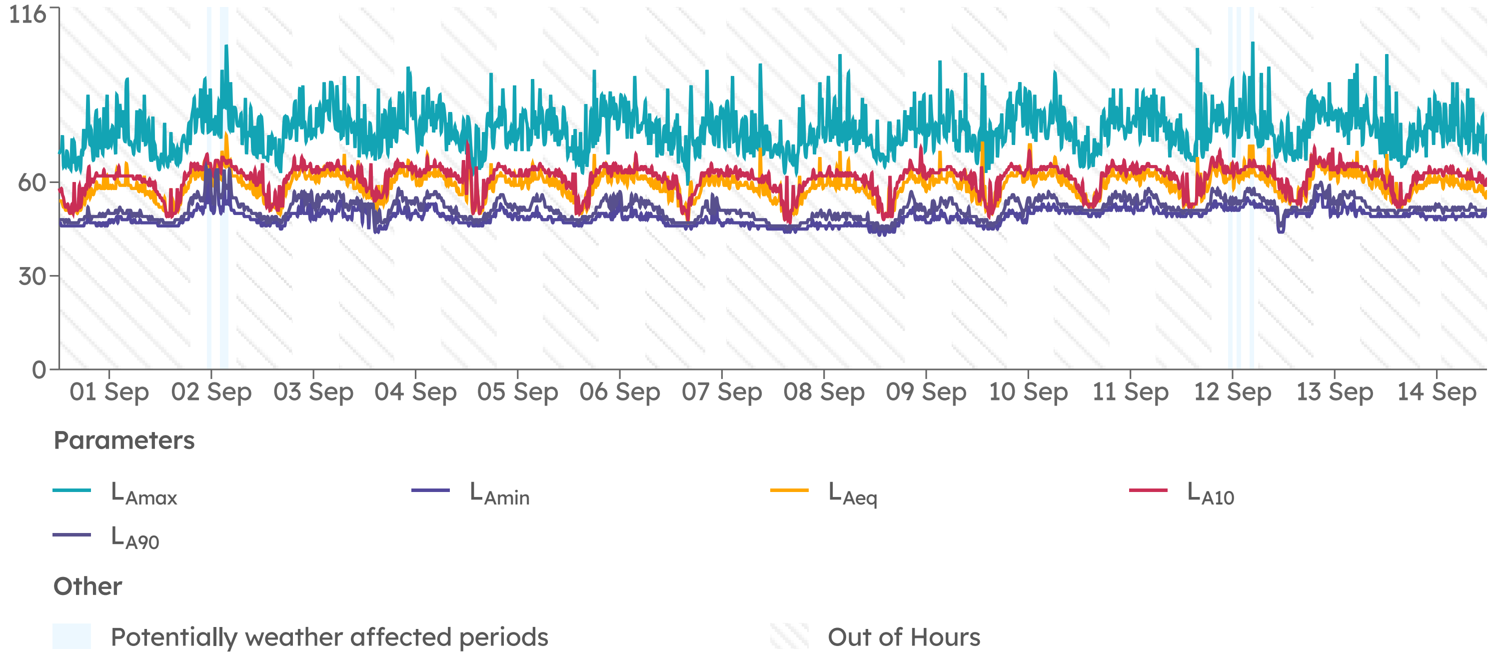
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

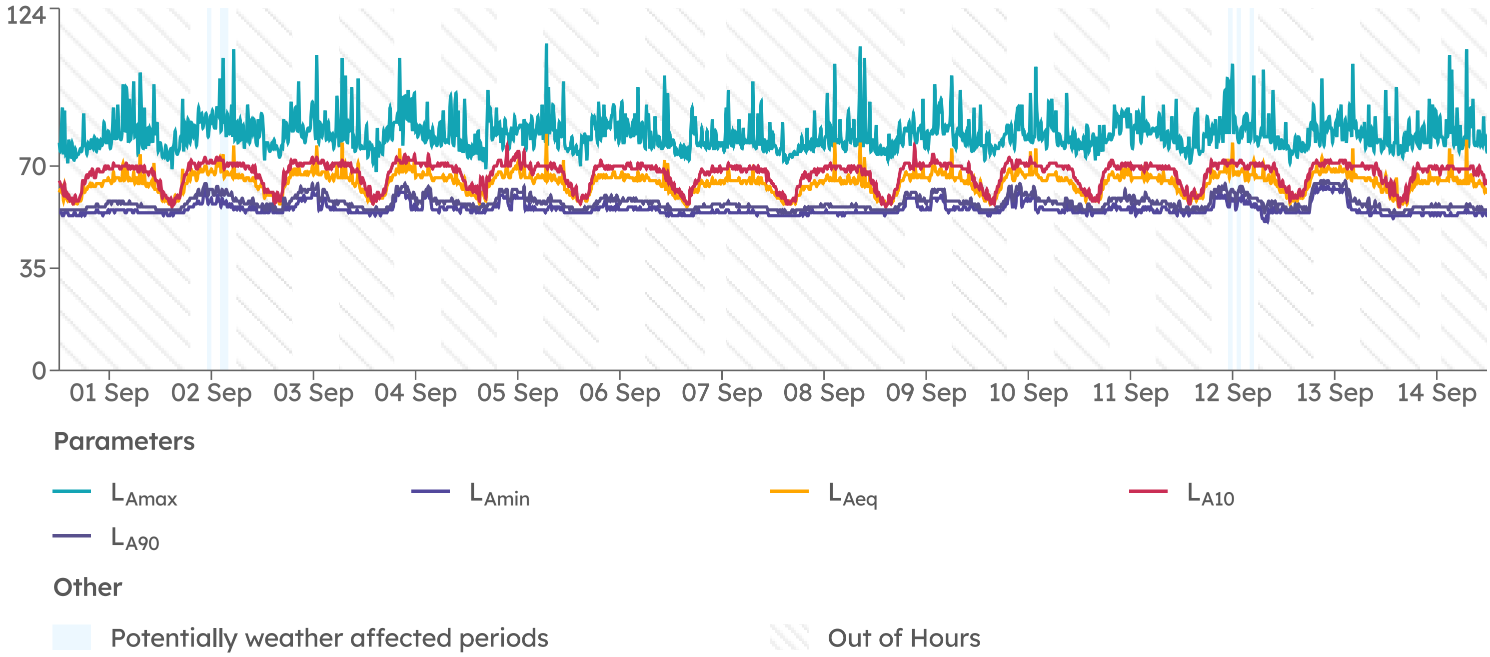
Hassall Street

01 Sep 2024 - 14 Sep 2024



Hawksbury Avenue

01 Sep 2024 - 14 Sep 2024



Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 29Sep24_12Oct24 Westmead

Monitoring Devices

Date Range 29 Sep 2024 - 12 Oct 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

63 dB	DAY	L_{Aeq}
60 dB	EVENING	L_{Aeq}
57 dB	NIGHT	L_{Aeq}

Average value across selected time period

Hawksbury Avenue

68 dB	DAY	L_{Aeq}
66 dB	EVENING	L_{Aeq}
62 dB	NIGHT	L_{Aeq}

Average value across selected time period

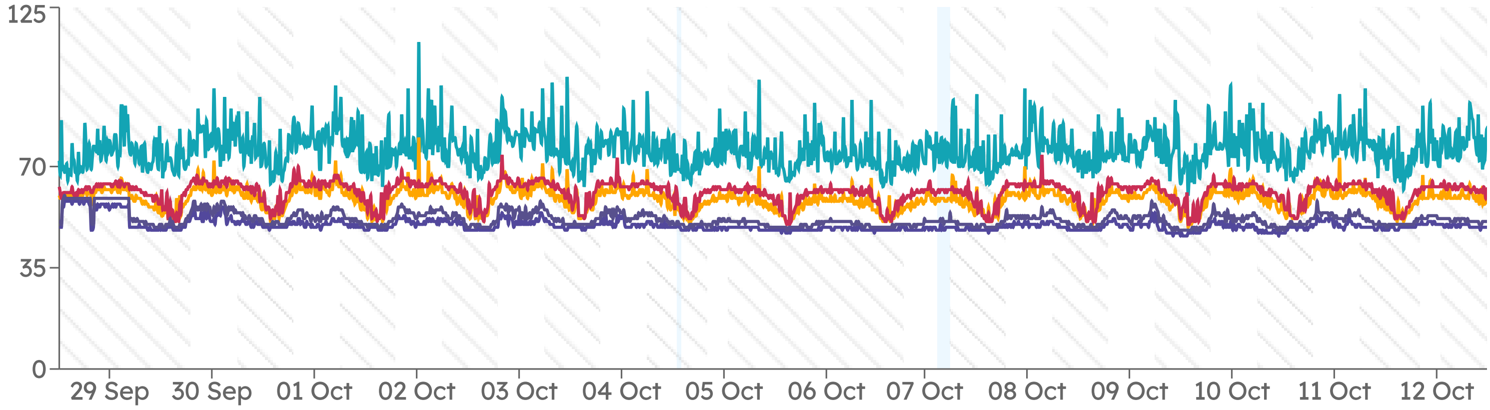
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

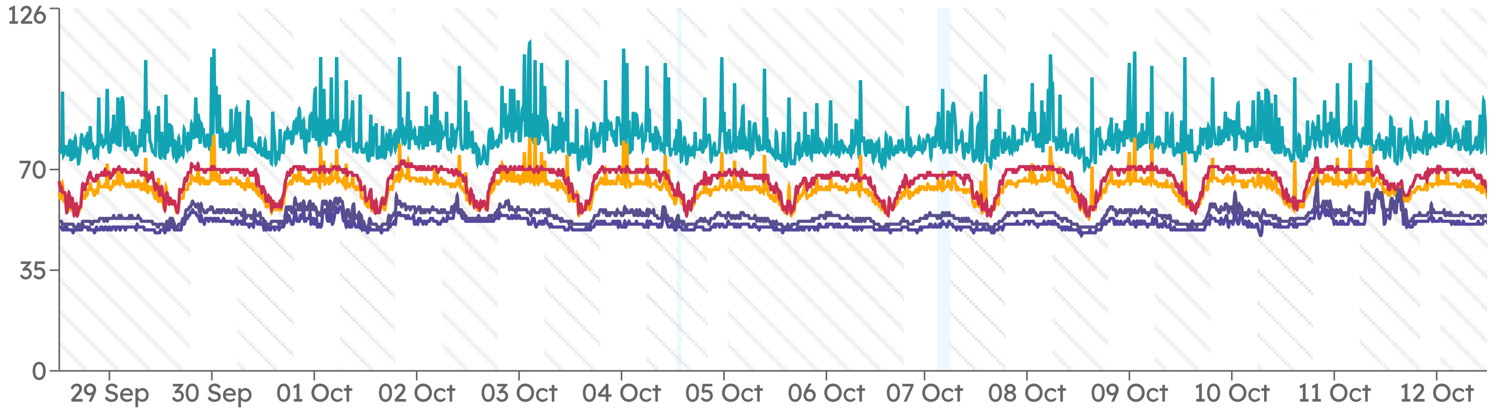
Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue

29 Sep 2024 - 12 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 13Oct24_26Oct24 Westmead

Monitoring Devices

Date Range 13 Oct 2024 - 26 Oct 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

63 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

67 dB — DAY L_{Aeq}

67 dB — EVENING L_{Aeq}

62 dB — NIGHT L_{Aeq}

Average value across selected time period

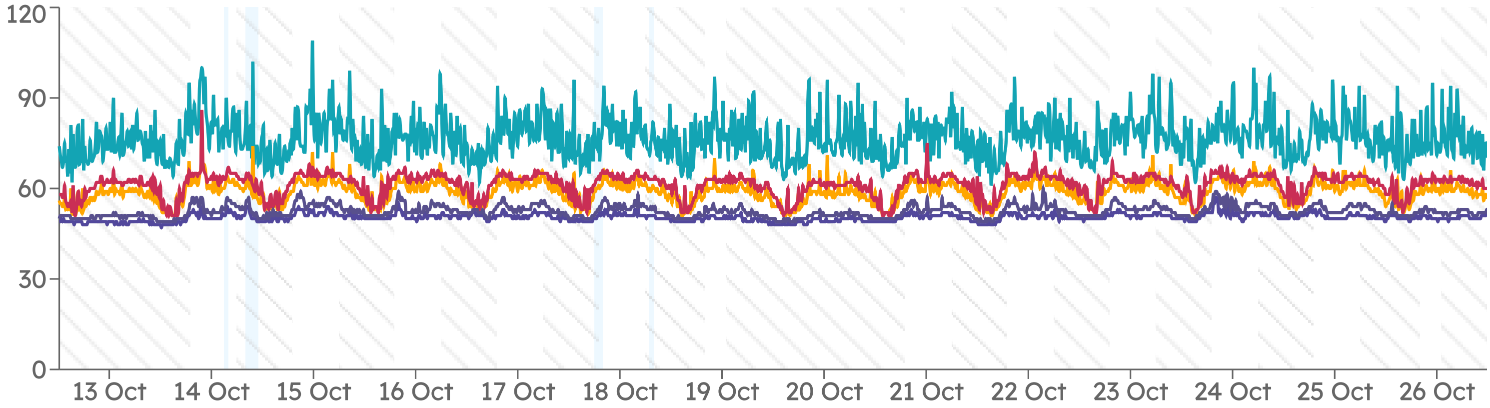
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

13 Oct 2024 - 26 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

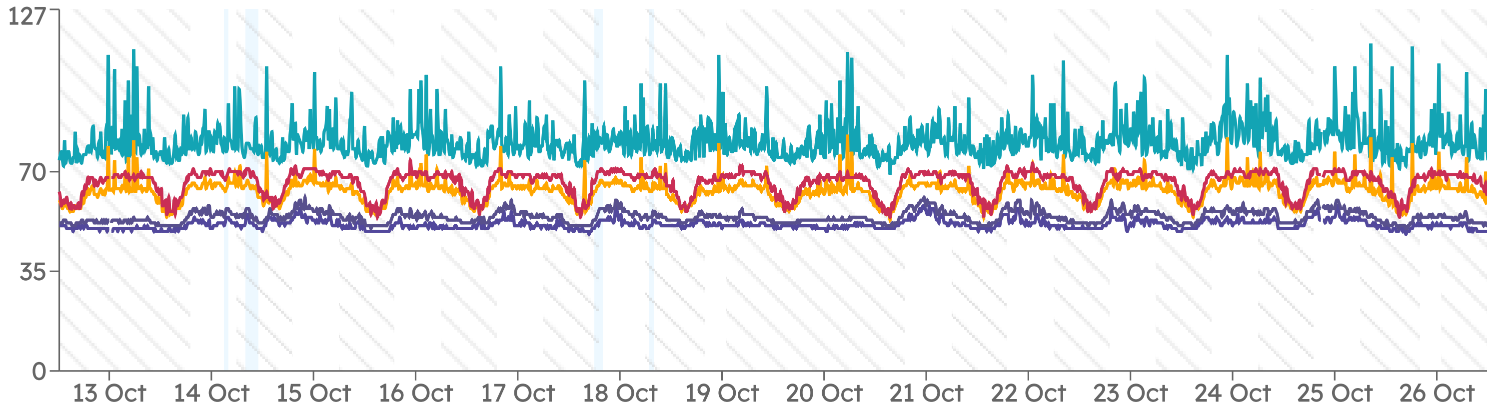
Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue

13 Oct 2024 - 26 Oct 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 27Oct24_9Nov24 Westmead

Monitoring Devices

Date Range 27 Oct 2024 - 09 Nov 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

63 dB	DAY	L_{Aeq}
61 dB	EVENING	L_{Aeq}
57 dB	NIGHT	L_{Aeq}

Average value across selected time period

Hawksbury Avenue

68 dB	DAY	L_{Aeq}
67 dB	EVENING	L_{Aeq}
64 dB	NIGHT	L_{Aeq}

Average value across selected time period

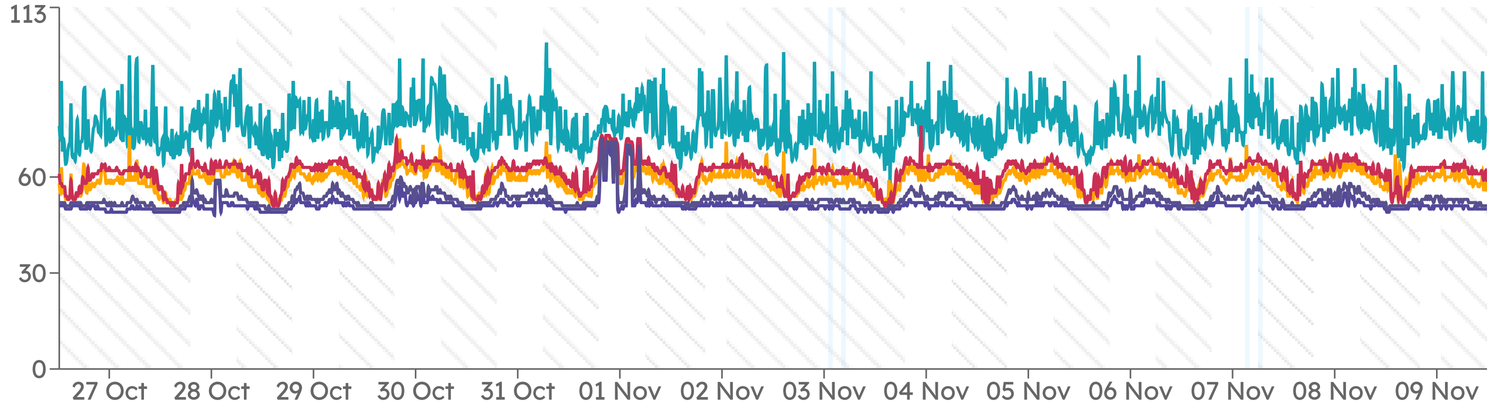
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

27 Oct 2024 - 09 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

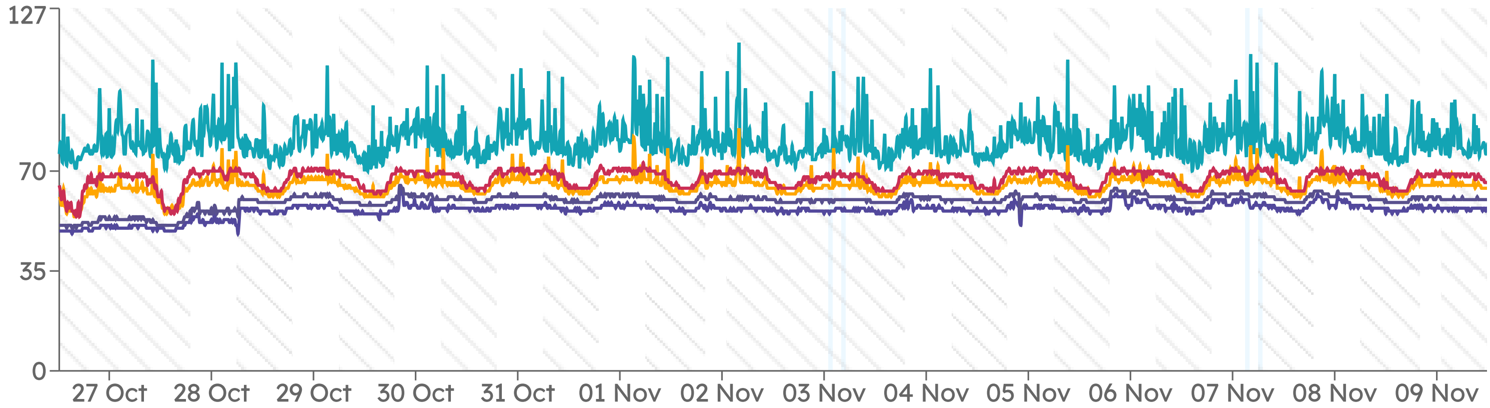
Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue

27 Oct 2024 - 09 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 10Nov24_23Nov24 Westmead

Monitoring Devices

Date Range 10 Nov 2024 - 23 Nov 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

62 dB — DAY L_{Aeq}

62 dB — EVENING L_{Aeq}

58 dB — NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

67 dB — DAY L_{Aeq}

67 dB — EVENING L_{Aeq}

62 dB — NIGHT L_{Aeq}

Average value across selected time period

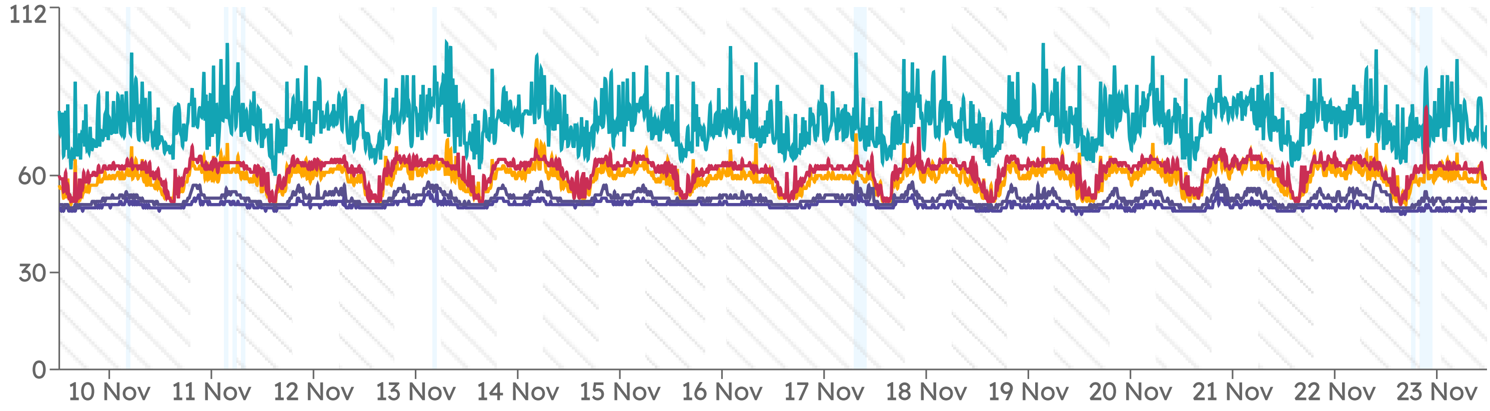
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

10 Nov 2024 - 23 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

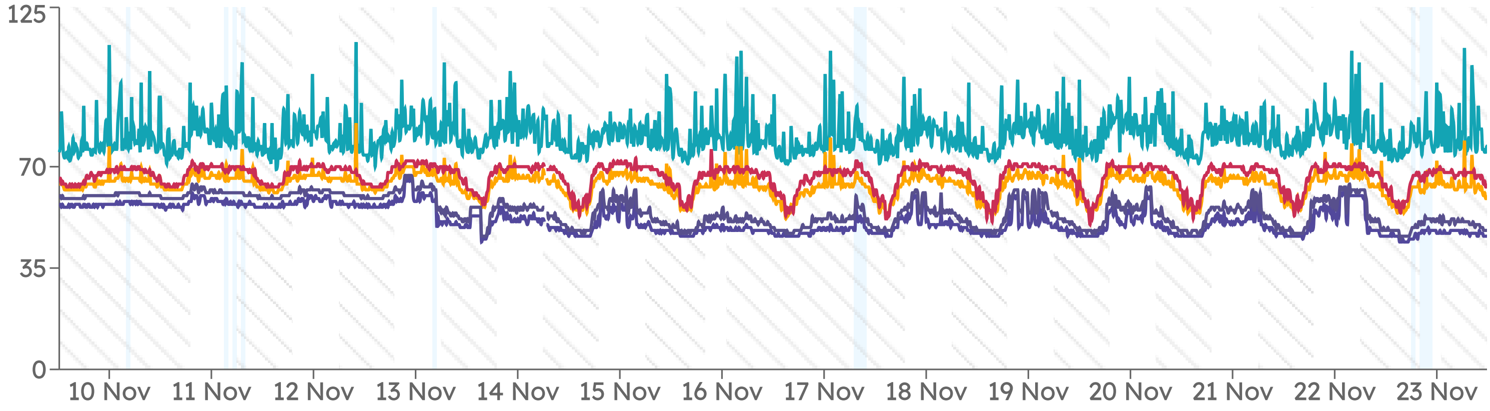
Potentially weather affected periods

Out of Hours

Hawksbury Avenue

10 Nov 2024 - 23 Nov 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 24Nov24_7Dec24 Westmead

Monitoring Devices

Date Range 24 Nov 2024 - 07 Dec 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

62 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

67 dB — DAY L_{Aeq}

66 dB — EVENING L_{Aeq}

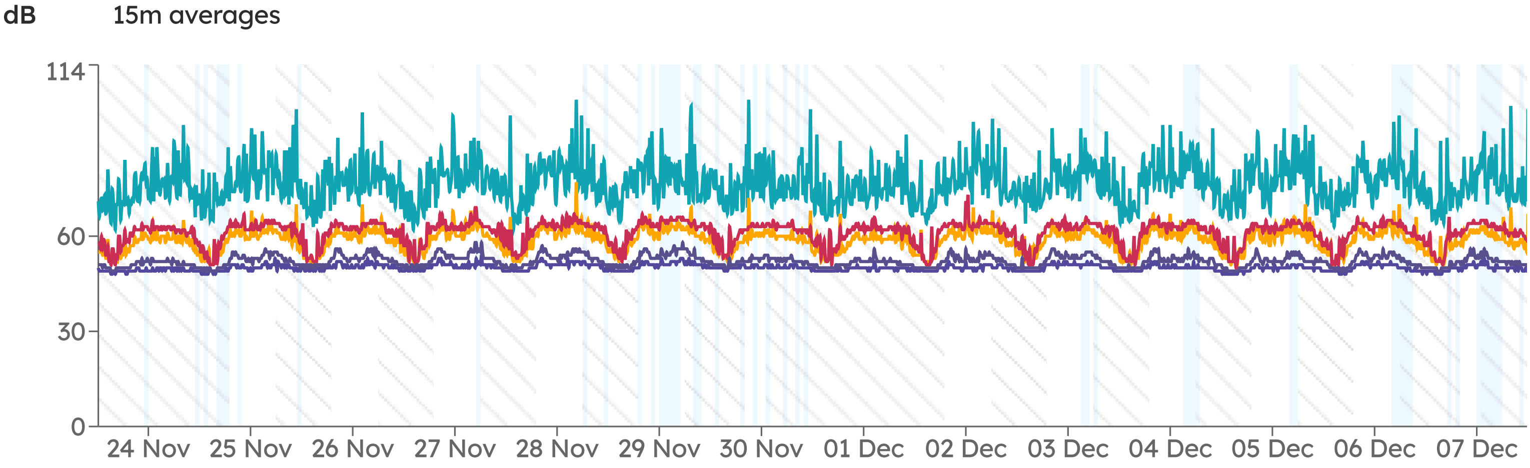
61 dB — NIGHT L_{Aeq}

Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street 24 Nov 2024 - 07 Dec 2024



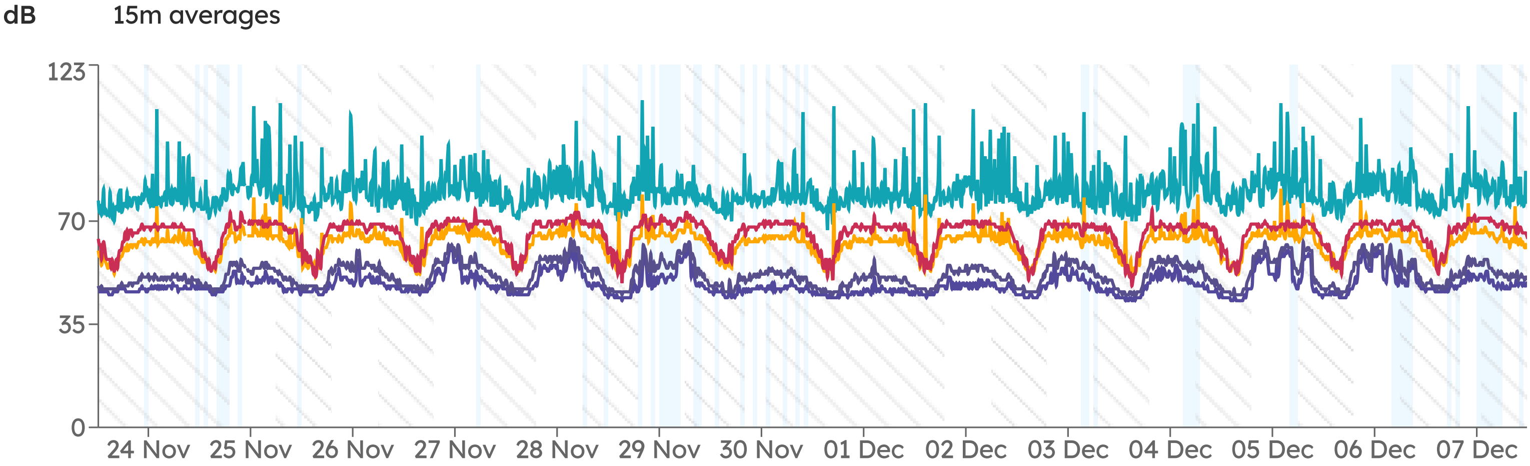
Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue 24 Nov 2024 - 07 Dec 2024



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 8Dec24_21Dec24 Westmead

Monitoring Devices

Date Range 08 Dec 2024 - 21 Dec 2024

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

62 dB — DAY L_{Aeq}

60 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

67 dB — DAY L_{Aeq}

67 dB — EVENING L_{Aeq}

63 dB — NIGHT L_{Aeq}

Average value across selected time period

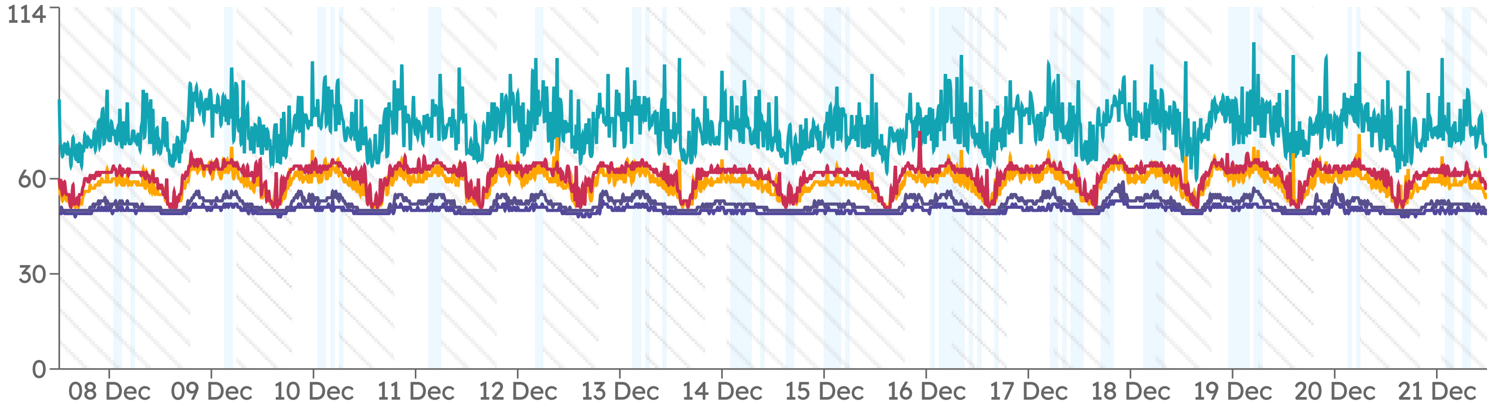
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

08 Dec 2024 - 21 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

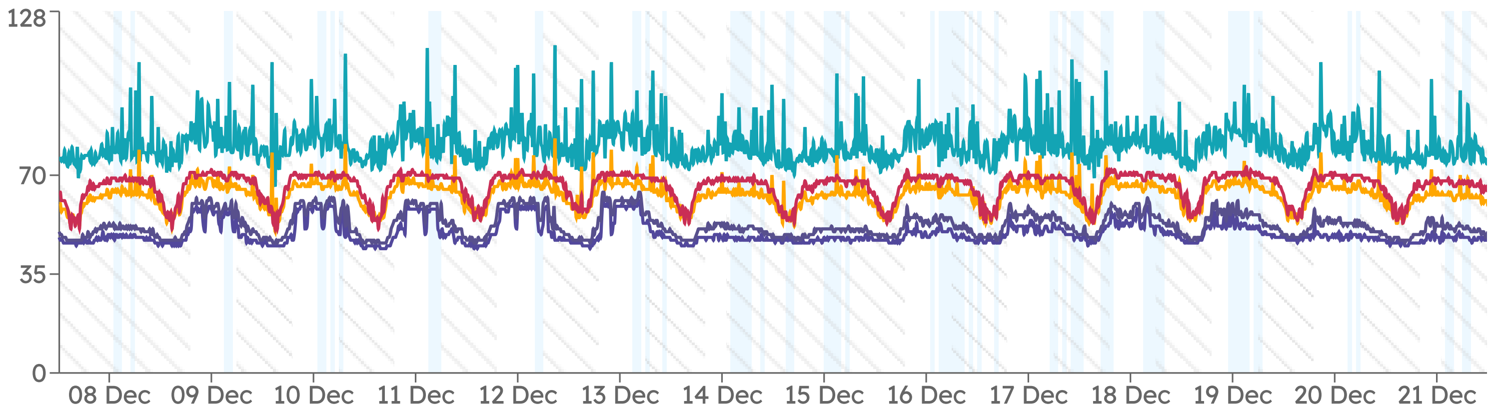
Potentially weather affected periods

Out of Hours

Hawksbury Avenue

08 Dec 2024 - 21 Dec 2024

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods

Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 22Dec24_4Jan24 Westmead

Monitoring Devices

Date Range 22 Dec 2024 - 04 Jan 2025

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

60 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

56 dB — NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

66 dB — DAY L_{Aeq}

65 dB — EVENING L_{Aeq}

61 dB — NIGHT L_{Aeq}

Average value across selected time period

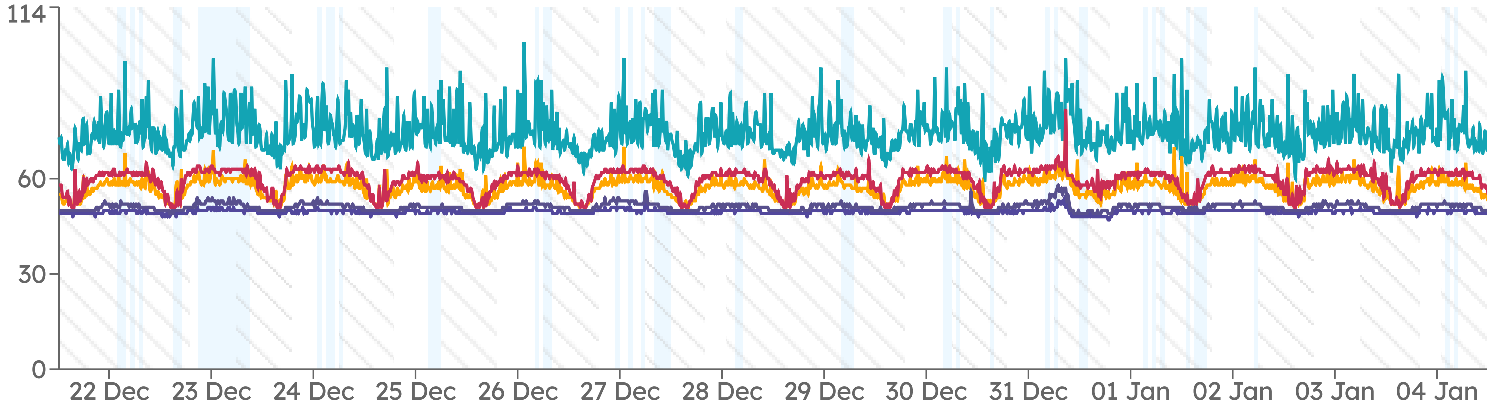
Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street

22 Dec 2024 - 04 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

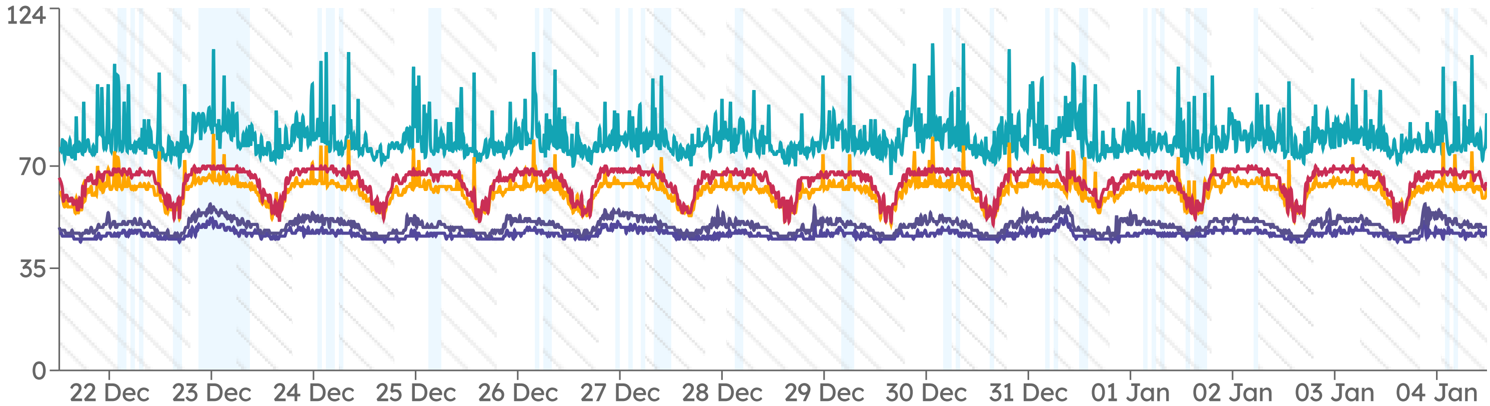
Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue

22 Dec 2024 - 04 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10} L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

Sydney Metro West WTP Westmead

Unattended Noise Monitoring 5Jan24_19Jan24 Westmead

Monitoring Devices

Date Range 05 Jan 2025 - 19 Jan 2025

Device Serial	Monitoring Points
HEX-000020	-
HEX-000445	-
HEX-000567	Hassall Street
HEX-000575	Hawksbury Avenue
HEX-000567	Hassall Street

Noise Monitoring Statistics

Hassall Street

62 dB — DAY L_{Aeq}

61 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

Average value across selected time period

Hawksbury Avenue

67 dB — DAY L_{Aeq}

67 dB — EVENING L_{Aeq}

61 dB — NIGHT L_{Aeq}

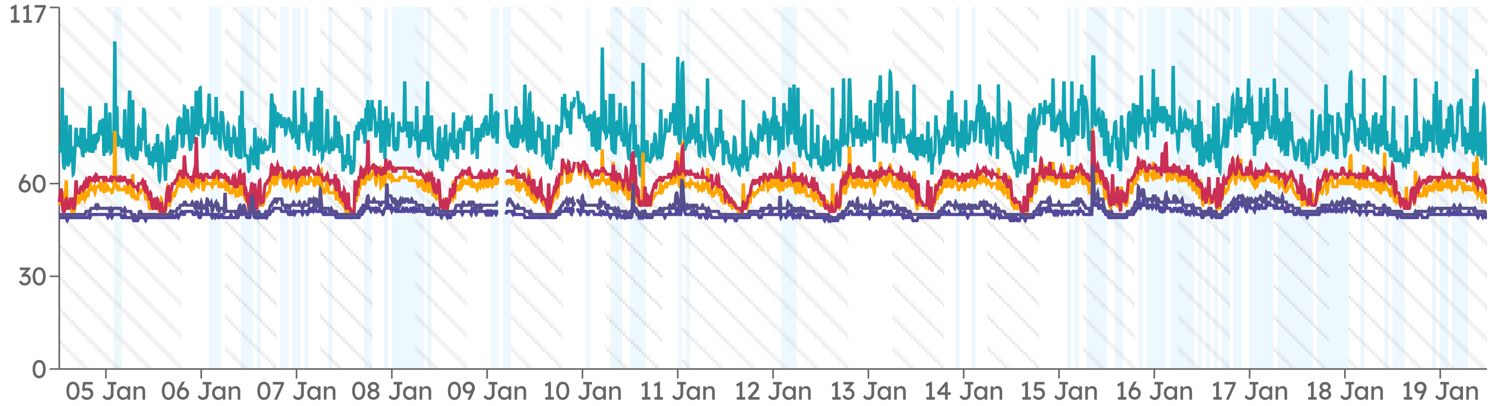
Average value across selected time period

Average value across selected time period. Time of Day Periods: Day (7am to 6pm) Evening (6pm to 10pm) Night (10pm to 7am).

Noise Monitoring Graphs

Hassall Street 05 Jan 2025 - 19 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

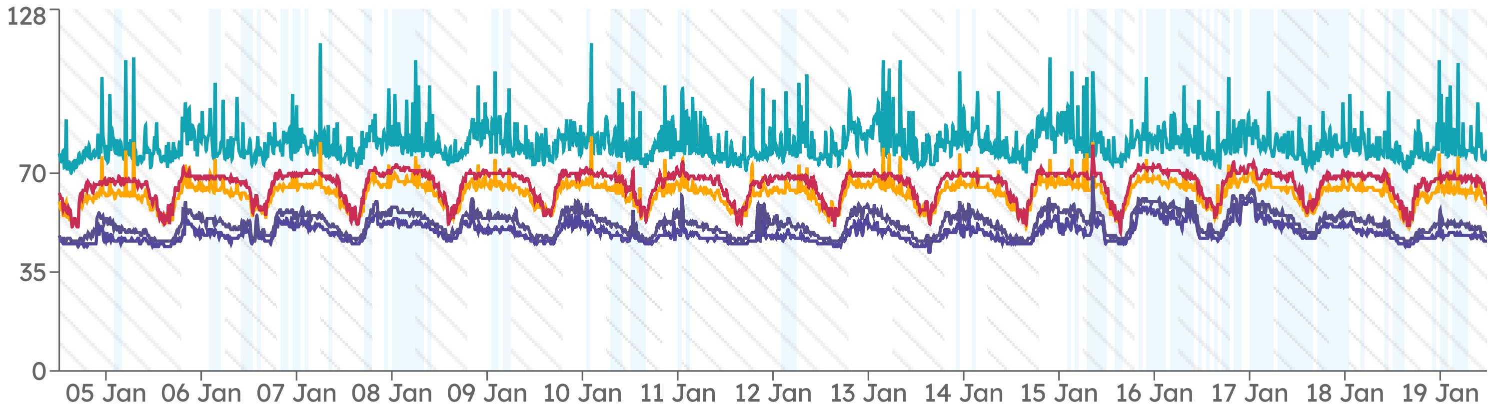
L_{A90}

Other

Potentially weather affected periods Out of Hours

Hawksbury Avenue 05 Jan 2025 - 19 Jan 2025

dB 15m averages



Parameters

L_{Amax} L_{Amin} L_{Aeq} L_{A10}

L_{A90}

Other

Potentially weather affected periods Out of Hours

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
HEX-000020	-	SiteHive Hexanode	-	-
HEX-000445	-	SiteHive Hexanode	04 Mar 2024	04 Mar 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000575	Hawksbury Avenue	SiteHive Hexanode	11 Jun 2024	11 Jun 2026
HEX-000567	Hassall Street	SiteHive Hexanode	11 Jun 2024	11 Jun 2026

Gamuda Laing O'Rourke

SiteHive

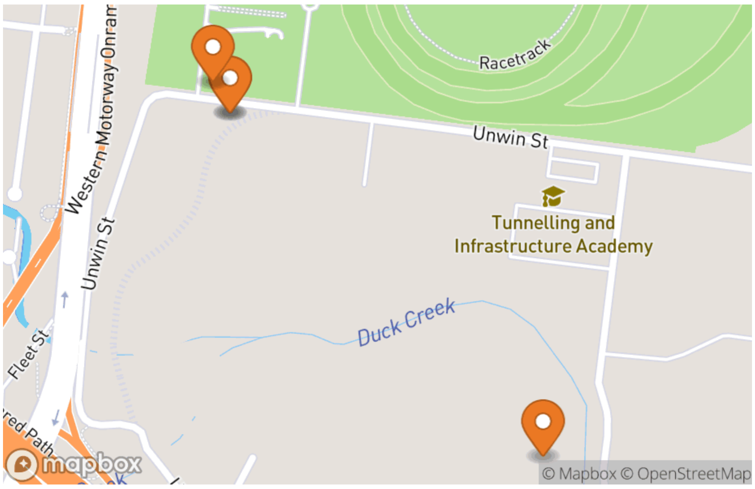
Sydney Metro West WTP MSF

Unattended Vibration Monitoring 20Jul24_20Oct24 Clyde MSF

Monitoring Devices

Date Range 20 Jul 2024 - 20 Oct 2024

Device Serial	Monitoring Points
VIB-000057	-
VIB-000007	CFA Piling (Ausgrid) - Section 6 MSF East
VIB-000057	Heritage - RTA Depot
VIB-000126	ATC - Rosehill Stables South



Vibration Monitoring Statistics

CFA Piling (Ausgrid) - Secti...

135 mm/s — MAXIMUM X Peak

62 mm/s — MAXIMUM Y Peak

21 mm/s — MAXIMUM Z Peak

Heritage - RTA Depot

9 mm/s — MAXIMUM X Peak

14 mm/s — MAXIMUM Y Peak

14 mm/s — MAXIMUM Z Peak

Heritage - RTA Depot

0.03 $m/s^{1.75}$ — MAXIMUM X VDV

0.05 $m/s^{1.75}$ — MAXIMUM Y VDV

0.43 $m/s^{1.75}$ — MAXIMUM Z VDV

ATC - Rosehill Stables Sou...

12 mm/s — MAXIMUM X Peak

7 mm/s — MAXIMUM Y Peak

33 mm/s — MAXIMUM Z Peak

ATC - Rosehill Stables Sou...

0.1 $m/s^{1.75}$ — MAXIMUM X VDV

0.05 $m/s^{1.75}$ — MAXIMUM Y VDV

0.23 $m/s^{1.75}$ — MAXIMUM Z VDV

mm/s	CFA Piling (Ausgrid) - S		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	1	3	2
24 Jul 2024	2	2	2
25 Jul 2024	1	2	2
26 Jul 2024	2	2	3
27 Jul 2024	0	0	0
28 Jul 2024	0	0	0
29 Jul 2024	0	0	0
30 Jul 2024	2	2	2
31 Jul 2024	4	3	3
01 Aug 2024	2	2	2
02 Aug 2024	1	1	1
03 Aug 2024	0	0	0
04 Aug 2024	0	0	0
05 Aug 2024	32	62	21
06 Aug 2024	1	2	2
07 Aug 2024	0	1	1
08 Aug 2024	1	1	1
09 Aug 2024	1	2	2
10 Aug 2024	1	1	1
11 Aug 2024	0	0	0
12 Aug 2024	1	2	1
13 Aug 2024	1	1	1
14 Aug 2024	1	1	2
15 Aug 2024	1	1	1
16 Aug 2024	135	23	5
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

mm/s	CFA Piling (Ausgrid) - S		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	--	--	--
14 Sep 2024	--	--	--
15 Sep 2024	--	--	--
16 Sep 2024	--	--	--
17 Sep 2024	--	--	--
18 Sep 2024	--	--	--
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	--	--	--
26 Sep 2024	--	--	--
27 Sep 2024	--	--	--
28 Sep 2024	--	--	--
29 Sep 2024	--	--	--
30 Sep 2024	--	--	--
01 Oct 2024	--	--	--
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

mm/s	CFA Piling (Ausgrid) - S		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	--	--	--
17 Oct 2024	--	--	--
18 Oct 2024	--	--	--
19 Oct 2024	--	--	--
20 Oct 2024	--	--	--
	--	--	--

mm/s Daily Max	Heritage - RTA Depot X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	--	--	--
10 Aug 2024	--	--	--
11 Aug 2024	--	--	--
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

$m/s^{1.75}$ Daily VDV	Heritage - RTA Depot Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	-- (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	-- (Z)	-- (Z)
02 Aug 2024	-- (Z)	-- (Z)
03 Aug 2024	-- (Z)	-- (Z)
04 Aug 2024	-- (Z)	-- (Z)
05 Aug 2024	-- (Z)	-- (Z)
06 Aug 2024	-- (Z)	-- (Z)
07 Aug 2024	-- (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	-- (Z)	-- (Z)
10 Aug 2024	-- (Z)	-- (Z)
11 Aug 2024	-- (Z)	-- (Z)
12 Aug 2024	-- (Z)	-- (Z)
13 Aug 2024	-- (Z)	-- (Z)
14 Aug 2024	-- (Z)	-- (Z)
15 Aug 2024	-- (Z)	-- (Z)
16 Aug 2024	-- (Z)	-- (Z)
17 Aug 2024	-- (Z)	-- (Z)
18 Aug 2024	-- (Z)	-- (Z)
19 Aug 2024	-- (Z)	-- (Z)
20 Aug 2024	-- (Z)	-- (Z)
21 Aug 2024	-- (Z)	-- (Z)
22 Aug 2024	-- (Z)	-- (Z)
23 Aug 2024	-- (Z)	-- (Z)
24 Aug 2024	-- (Z)	-- (Z)
25 Aug 2024	-- (Z)	-- (Z)
26 Aug 2024	-- (Z)	-- (Z)
27 Aug 2024	-- (Z)	-- (Z)
28 Aug 2024	-- (Z)	-- (Z)

mm/s	Heritage - RTA Depot		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	0	0	2
14 Sep 2024	0	0	1
15 Sep 2024	0	0	1
16 Sep 2024	1	1	2
17 Sep 2024	1	1	1
18 Sep 2024	1	0	1
19 Sep 2024	2	2	11
20 Sep 2024	1	0	2
21 Sep 2024	1	2	2
22 Sep 2024	1	0	1
23 Sep 2024	1	0	1
24 Sep 2024	1	1	2
25 Sep 2024	1	1	6
26 Sep 2024	0	0	1
27 Sep 2024	0	0	1
28 Sep 2024	0	0	1
29 Sep 2024	0	0	1
30 Sep 2024	2	3	7
01 Oct 2024	0	0	1
02 Oct 2024	9	14	14
03 Oct 2024	1	2	3
04 Oct 2024	1	2	4
05 Oct 2024	0	0	1
06 Oct 2024	0	0	0
07 Oct 2024	0	0	1

$m/s^{1.75}$	Heritage - RTA Depot	
Daily VDV	Day	Night
29 Aug 2024	-- (Z)	-- (Z)
30 Aug 2024	-- (Z)	-- (Z)
31 Aug 2024	-- (Z)	-- (Z)
01 Sep 2024	-- (Z)	-- (Z)
02 Sep 2024	-- (Z)	-- (Z)
03 Sep 2024	-- (Z)	-- (Z)
04 Sep 2024	-- (Z)	-- (Z)
05 Sep 2024	-- (Z)	-- (Z)
06 Sep 2024	-- (Z)	-- (Z)
07 Sep 2024	-- (Z)	-- (Z)
08 Sep 2024	-- (Z)	-- (Z)
09 Sep 2024	-- (Z)	-- (Z)
10 Sep 2024	-- (Z)	-- (Z)
11 Sep 2024	-- (Z)	-- (Z)
12 Sep 2024	-- (Z)	-- (Z)
13 Sep 2024	0.06 (Z)	0.05 (Z)
14 Sep 2024	0.07 (Z)	0.03 (Z)
15 Sep 2024	0.04 (Z)	0.07 (Z)
16 Sep 2024	0.09 (Z)	0.07 (Z)
17 Sep 2024	0.09 (Z)	0.05 (Z)
18 Sep 2024	0.06 (Z)	0.06 (Z)
19 Sep 2024	0.22 (Z)	0.05 (Z)
20 Sep 2024	0.07 (Z)	0.03 (Z)
21 Sep 2024	0.07 (Z)	0.02 (Z)
22 Sep 2024	0.04 (Z)	0.05 (Z)
23 Sep 2024	0.05 (Z)	0.05 (Z)
24 Sep 2024	0.07 (Z)	0.05 (Z)
25 Sep 2024	0.11 (Z)	0.05 (Z)
26 Sep 2024	0.06 (Z)	0.04 (Z)
27 Sep 2024	0.06 (Z)	0.03 (Z)
28 Sep 2024	0.05 (Z)	0.02 (Z)
29 Sep 2024	0.03 (Z)	0.04 (Z)
30 Sep 2024	0.21 (Z)	0.05 (Z)
01 Oct 2024	0.03 (Z)	-- (Z)
02 Oct 2024	0.33 (Z)	0.05 (Z)
03 Oct 2024	0.16 (Z)	0.05 (Z)
04 Oct 2024	0.16 (Z)	0.03 (Z)
05 Oct 2024	0.04 (Z)	0.02 (Z)
06 Oct 2024	0.02 (Z)	0.04 (Z)
07 Oct 2024	0.02 (Z)	0.04 (Z)

mm/s	Heritage - RTA Depot		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	1	1
09 Oct 2024	1	2	3
10 Oct 2024	1	2	3
11 Oct 2024	1	2	3
12 Oct 2024	0	1	1
13 Oct 2024	0	0	1
14 Oct 2024	1	1	1
15 Oct 2024	1	1	1
16 Oct 2024	1	1	1
17 Oct 2024	1	1	3
18 Oct 2024	1	1	5
19 Oct 2024	1	2	4
20 Oct 2024	0	0	1
	--	--	--

$m/s^{1.75}$	Heritage - RTA Depot	
Daily VDV	Day	Night
08 Oct 2024	0.04 (Z)	0.03 (Z)
09 Oct 2024	0.43 (Z)	0.04 (Z)
10 Oct 2024	0.15 (Z)	0.04 (Z)
11 Oct 2024	0.16 (Z)	0.04 (Z)
12 Oct 2024	0.06 (Z)	0.02 (Z)
13 Oct 2024	0.04 (Z)	0.06 (Z)
14 Oct 2024	0.08 (Z)	0.06 (Z)
15 Oct 2024	0.09 (Z)	0.06 (Z)
16 Oct 2024	0.09 (Z)	0.06 (Z)
17 Oct 2024	0.14 (Z)	0.06 (Z)
18 Oct 2024	0.26 (Z)	0.03 (Z)
19 Oct 2024	0.28 (Z)	0.02 (Z)
20 Oct 2024	0.02 (Z)	0.02 (Z)

mm/s	ATC - Rosehill Stables S		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	--	--	--
10 Aug 2024	--	--	--
11 Aug 2024	--	--	--
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

$m/s^{1.75}$	ATC - Rosehill Stables S	
Daily VDV	Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	-- (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	-- (Z)	-- (Z)
02 Aug 2024	-- (Z)	-- (Z)
03 Aug 2024	-- (Z)	-- (Z)
04 Aug 2024	-- (Z)	-- (Z)
05 Aug 2024	-- (Z)	-- (Z)
06 Aug 2024	-- (Z)	-- (Z)
07 Aug 2024	-- (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	-- (Z)	-- (Z)
10 Aug 2024	-- (Z)	-- (Z)
11 Aug 2024	-- (Z)	-- (Z)
12 Aug 2024	-- (Z)	-- (Z)
13 Aug 2024	-- (Z)	-- (Z)
14 Aug 2024	-- (Z)	-- (Z)
15 Aug 2024	-- (Z)	-- (Z)
16 Aug 2024	-- (Z)	-- (Z)
17 Aug 2024	-- (Z)	-- (Z)
18 Aug 2024	-- (Z)	-- (Z)
19 Aug 2024	-- (Z)	-- (Z)
20 Aug 2024	-- (Z)	-- (Z)
21 Aug 2024	-- (Z)	-- (Z)
22 Aug 2024	-- (Z)	-- (Z)
23 Aug 2024	-- (Z)	-- (Z)
24 Aug 2024	-- (Z)	-- (Z)
25 Aug 2024	-- (Z)	-- (Z)
26 Aug 2024	-- (Z)	-- (Z)
27 Aug 2024	-- (Z)	-- (Z)
28 Aug 2024	-- (Z)	-- (Z)

mm/s Daily Max	ATC - Rosehill Stables S		
	X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	--	--	--
14 Sep 2024	--	--	--
15 Sep 2024	--	--	--
16 Sep 2024	--	--	--
17 Sep 2024	--	--	--
18 Sep 2024	--	--	--
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	--	--	--
26 Sep 2024	--	--	--
27 Sep 2024	4	5	7
28 Sep 2024	4	7	5
29 Sep 2024	3	6	5
30 Sep 2024	6	7	33
01 Oct 2024	--	--	--
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

$m/s^{1.75}$ Daily VDV	ATC - Rosehill Stables S	
	Day	Night
29 Aug 2024	-- (Z)	-- (Z)
30 Aug 2024	-- (Z)	-- (Z)
31 Aug 2024	-- (Z)	-- (Z)
01 Sep 2024	-- (Z)	-- (Z)
02 Sep 2024	-- (Z)	-- (Z)
03 Sep 2024	-- (Z)	-- (Z)
04 Sep 2024	-- (Z)	-- (Z)
05 Sep 2024	-- (Z)	-- (Z)
06 Sep 2024	-- (Z)	-- (Z)
07 Sep 2024	-- (Z)	-- (Z)
08 Sep 2024	-- (Z)	-- (Z)
09 Sep 2024	-- (Z)	-- (Z)
10 Sep 2024	-- (Z)	-- (Z)
11 Sep 2024	-- (Z)	-- (Z)
12 Sep 2024	-- (Z)	-- (Z)
13 Sep 2024	-- (Z)	-- (Z)
14 Sep 2024	-- (Z)	-- (Z)
15 Sep 2024	-- (Z)	-- (Z)
16 Sep 2024	-- (Z)	-- (Z)
17 Sep 2024	-- (Z)	-- (Z)
18 Sep 2024	-- (Z)	-- (Z)
19 Sep 2024	-- (Z)	-- (Z)
20 Sep 2024	-- (Z)	-- (Z)
21 Sep 2024	-- (Z)	-- (Z)
22 Sep 2024	-- (Z)	-- (Z)
23 Sep 2024	-- (Z)	-- (Z)
24 Sep 2024	-- (Z)	-- (Z)
25 Sep 2024	-- (Z)	-- (Z)
26 Sep 2024	-- (Z)	-- (Z)
27 Sep 2024	0.03 (Z)	-- (Z)
28 Sep 2024	-- (Z)	-- (Z)
29 Sep 2024	-- (Z)	-- (Z)
30 Sep 2024	-- (Z)	-- (Z)
01 Oct 2024	-- (Z)	-- (Z)
02 Oct 2024	-- (Z)	-- (Z)
03 Oct 2024	-- (Z)	-- (Z)
04 Oct 2024	-- (Z)	-- (Z)
05 Oct 2024	-- (Z)	-- (Z)
06 Oct 2024	-- (Z)	-- (Z)
07 Oct 2024	-- (Z)	-- (Z)

mm/s	ATC - Rosehill Stables S		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	1	1	1
12 Oct 2024	2	1	1
13 Oct 2024	2	1	2
14 Oct 2024	2	2	1
15 Oct 2024	2	2	2
16 Oct 2024	3	2	2
17 Oct 2024	5	4	5
18 Oct 2024	12	6	11
19 Oct 2024	8	7	12
20 Oct 2024	2	2	4
	--	--	--

$m/s^{1.75}$	ATC - Rosehill Stables S	
Daily VDV	Day	Night
08 Oct 2024	-- (Z)	-- (Z)
09 Oct 2024	-- (Z)	-- (Z)
10 Oct 2024	-- (Z)	-- (Z)
11 Oct 2024	0.03 (Z)	0.02 (Z)
12 Oct 2024	0.02 (Z)	0.01 (Z)
13 Oct 2024	0.02 (Z)	0.03 (Z)
14 Oct 2024	0.04 (Z)	0.03 (Z)
15 Oct 2024	0.04 (Z)	0.03 (Z)
16 Oct 2024	0.05 (Z)	0.03 (Z)
17 Oct 2024	0.1 (Z)	0.03 (Z)
18 Oct 2024	0.23 (Z)	0.02 (Z)
19 Oct 2024	0.18 (Z)	0.05 (Z)
20 Oct 2024	0.02 (Z)	0.01 (Z)

Daily Notes

Date and time	By	Monitoring Point(s)	Note
13 Sep 2024	Daniel		VIB0057 Monitor mobilized for Heritage - RTA Depot at Clyde MSF (West)
28 Sep 2024	Daniel		Vibration device in the site office - DOES NOT REFLECT CONSTRUCTION VIBRATION ACTIVITIES
29 Sep 2024	Daniel		Vibration device in the site office - DOES NOT REFLECT CONSTRUCTION VIBRATION ACTIVITIES
30 Sep 2024	Daniel		ATC Stables South - Vibration device in the site office - DOES NOT REFLECT CONSTRUCTION VIBRATION ACTIVITIES
30 Sep 2024	Daniel		Small spike readings for Heritage RTA Depot related to individual pumping water into the WTP pipeline adjacent to the monitor for dewatering due to rainfall
02 Oct 2024	Daniel		Heritage RTA Depot vibration monitor reinstalled and repositioned to south curtilage of the RTA Depot
02 Oct 2024	Daniel		Device inspected at 12:45pm - 13:02pm to identify why it appeared offline. device displayed no signal light. Device moved to try to improve signal
11 Oct 2024	Daniel		VIB000126 installed at the ATC. placement of the sandbag on top and walking around monitor between 11-12
11 Oct 2024	Daniel		VIB0057 relocated to the corner of the RTA after rockcxbreaking of floo d basin area, in preparation for road diversion
11 Oct 2024	Daniel		Rock breaking undertaken on the 9-10th October, Had not received approved access to ATC stables to install vibration monitor. Some minor rock breaking still be undertaken by 18T excavator approximately 15-20m from Receiver Horse Stable

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
VIB-000057	-	SiteHive Hexanode	07 Sep 2023	07 Sep 2025
VIB-000007	CFA Piling (Ausgrid) - Section 6 MSF East	SiteHive Hexanode	-	-
VIB-000057	Heritage - RTA Depot	SiteHive Hexanode	07 Sep 2023	07 Sep 2025
VIB-000126	ATC - Rosehill Stables South	SiteHive Hexanode	06 Mar 2024	06 Mar 2026

Gamuda Laing O'Rourke

SiteHive

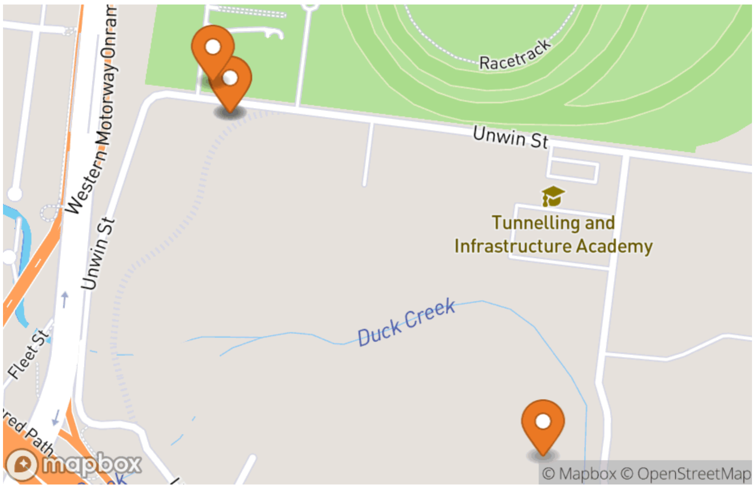
Sydney Metro West WTP MSF

Unattended Vibration Monitoring 21Oct24_19Jan25 Clyde MSF

Monitoring Devices

Date Range 21 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
VIB-000057	-
VIB-000007	CFA Piling (Ausgrid) - Section 6 MSF East
VIB-000057	Heritage - RTA Depot
VIB-000126	ATC - Rosehill Stables South



Vibration Monitoring Statistics

CFA Piling (Ausgrid) - Secti...

0 mm/s — MAXIMUM X Peak

16 mm/s — MAXIMUM Y Peak

1 mm/s — MAXIMUM Z Peak

Heritage - RTA Depot

5 mm/s — MAXIMUM X Peak

11 mm/s — MAXIMUM Y Peak

23 mm/s — MAXIMUM Z Peak

Heritage - RTA Depot

0.05 $m/s^{1.75}$ — MAXIMUM X VDV

0.09 $m/s^{1.75}$ — MAXIMUM Y VDV

0.9 $m/s^{1.75}$ — MAXIMUM Z VDV

ATC - Rosehill Stables Sou...

11 mm/s — MAXIMUM X Peak

10 mm/s — MAXIMUM Y Peak

5 mm/s — MAXIMUM Z Peak

ATC - Rosehill Stables Sou...

0.2 $m/s^{1.75}$ — MAXIMUM X VDV

0.18 $m/s^{1.75}$ — MAXIMUM Y VDV

0.55 $m/s^{1.75}$ — MAXIMUM Z VDV

mm/s Daily Max	CFA Piling (Ausgrid) - S X Peak	 Y Peak	 Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	0	16	1
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

mm/s	CFA Piling (Ausgrid) - S		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

mm/s	CFA Piling (Ausgrid) - S		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

mm/s	Heritage - RTA Depot		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	1	1	2
22 Oct 2024	1	0	1
23 Oct 2024	1	1	1
24 Oct 2024	1	1	4
25 Oct 2024	1	1	4
26 Oct 2024	1	2	4
27 Oct 2024	1	2	4
28 Oct 2024	1	2	5
29 Oct 2024	0	1	1
30 Oct 2024	1	1	2
31 Oct 2024	2	1	5
01 Nov 2024	2	2	6
02 Nov 2024	1	1	2
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	1	2	6
06 Nov 2024	5	11	23
07 Nov 2024	1	3	10
08 Nov 2024	1	1	3
09 Nov 2024	0	0	1
10 Nov 2024	0	0	0
11 Nov 2024	1	1	3
12 Nov 2024	0	0	2
13 Nov 2024	1	0	1
14 Nov 2024	0	0	1
15 Nov 2024	0	0	0
16 Nov 2024	0	0	0
17 Nov 2024	0	0	0
18 Nov 2024	0	0	1
19 Nov 2024	0	0	0
20 Nov 2024	0	0	0
21 Nov 2024	0	0	1
22 Nov 2024	0	0	2
23 Nov 2024	0	0	0
24 Nov 2024	0	0	0
25 Nov 2024	1	1	2
26 Nov 2024	1	0	1
27 Nov 2024	1	1	1
28 Nov 2024	1	1	2
29 Nov 2024	1	1	1

$m/s^{1.75}$	Heritage - RTA Depot	
Daily VDV	Day	Night
21 Oct 2024	0.23 (Z)	0.05 (Z)
22 Oct 2024	0.21 (Z)	0.06 (Z)
23 Oct 2024	0.2 (Z)	0.06 (Z)
24 Oct 2024	0.32 (Z)	0.05 (Z)
25 Oct 2024	0.24 (Z)	0.02 (Z)
26 Oct 2024	0.51 (Z)	0.02 (Z)
27 Oct 2024	0.37 (Z)	0.05 (Z)
28 Oct 2024	0.41 (Z)	0.05 (Z)
29 Oct 2024	0.07 (Z)	0.05 (Z)
30 Oct 2024	0.09 (Z)	0.06 (Z)
31 Oct 2024	0.11 (Z)	0.03 (Z)
01 Nov 2024	0.39 (Z)	0.01 (Z)
02 Nov 2024	0.13 (Z)	0.01 (Z)
03 Nov 2024	0.02 (Z)	0.02 (Z)
04 Nov 2024	0.01 (Z)	-- (Z)
05 Nov 2024	0.17 (Z)	0.01 (Z)
06 Nov 2024	0.67 (Z)	0.01 (Z)
07 Nov 2024	0.14 (Z)	0.01 (Z)
08 Nov 2024	0.08 (Z)	0.01 (Z)
09 Nov 2024	0.05 (Z)	0.01 (Z)
10 Nov 2024	0.01 (Z)	0.01 (Z)
11 Nov 2024	0.05 (Z)	0.01 (Z)
12 Nov 2024	0.03 (Z)	0.01 (Z)
13 Nov 2024	0.03 (Z)	0.02 (Z)
14 Nov 2024	0.03 (Z)	0.02 (Z)
15 Nov 2024	0.02 (Z)	0.01 (Z)
16 Nov 2024	0.02 (Z)	0.01 (Z)
17 Nov 2024	0.01 (Z)	0.01 (Z)
18 Nov 2024	0.02 (Z)	0.02 (Z)
19 Nov 2024	0.02 (Z)	0.02 (Z)
20 Nov 2024	0.03 (Z)	0.02 (Z)
21 Nov 2024	0.04 (Z)	0.02 (Z)
22 Nov 2024	0.08 (Z)	0.02 (Z)
23 Nov 2024	0.03 (Z)	0.01 (Z)
24 Nov 2024	0.02 (Z)	0.02 (Z)
25 Nov 2024	0.08 (Z)	0.02 (Z)
26 Nov 2024	0.05 (Z)	0.02 (Z)
27 Nov 2024	0.05 (Z)	0.02 (Z)
28 Nov 2024	0.08 (Z)	0.02 (Z)
29 Nov 2024	0.07 (Z)	0.01 (Z)

mm/s Daily Max	Heritage - RTA Depot X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	1	0	1
03 Dec 2024	1	1	4
04 Dec 2024	0	0	1
05 Dec 2024	1	0	2
06 Dec 2024	0	1	1
07 Dec 2024	0	0	1
08 Dec 2024	1	1	1
09 Dec 2024	1	1	2
10 Dec 2024	0	1	2
11 Dec 2024	0	0	1
12 Dec 2024	0	1	3
13 Dec 2024	2	2	6
14 Dec 2024	1	4	5
15 Dec 2024	0	0	0
16 Dec 2024	1	2	6
17 Dec 2024	2	3	6
18 Dec 2024	2	2	5
19 Dec 2024	1	0	2
20 Dec 2024	0	1	1
21 Dec 2024	0	1	1
22 Dec 2024	0	1	1
23 Dec 2024	1	1	2
24 Dec 2024	1	1	2
25 Dec 2024	0	0	0
26 Dec 2024	0	0	0
27 Dec 2024	1	1	3
28 Dec 2024	1	1	3
29 Dec 2024	2	4	6
30 Dec 2024	2	3	8
31 Dec 2024	0	1	4
01 Jan 2025	0	0	0
02 Jan 2025	2	4	6
03 Jan 2025	1	1	1
04 Jan 2025	0	1	2
05 Jan 2025	0	0	0
06 Jan 2025	3	2	10
07 Jan 2025	0	0	1
08 Jan 2025	0	0	1

$m/s^{1.75}$ Daily VDV	Heritage - RTA Depot Day	Night
30 Nov 2024	0.02 (Z)	0.01 (Z)
01 Dec 2024	0.02 (Z)	0.02 (Z)
02 Dec 2024	0.04 (Z)	0.06 (Z)
03 Dec 2024	0.12 (Z)	0.02 (Z)
04 Dec 2024	0.05 (Z)	0.05 (Z)
05 Dec 2024	0.03 (Z)	-- (Z)
06 Dec 2024	0.11 (Z)	0.05 (Z)
07 Dec 2024	0.02 (Z)	0.01 (Z)
08 Dec 2024	0.02 (Z)	0.02 (Z)
09 Dec 2024	0.08 (Z)	0.02 (Z)
10 Dec 2024	0.09 (Z)	0.02 (Z)
11 Dec 2024	0.08 (Z)	0.03 (Z)
12 Dec 2024	0.07 (Z)	0.08 (Z)
13 Dec 2024	0.52 (Z)	0.02 (Z)
14 Dec 2024	0.65 (Z)	0.01 (Z)
15 Dec 2024	0.02 (Z)	0.02 (Z)
16 Dec 2024	0.62 (Z)	0.14 (Z)
17 Dec 2024	0.29 (Z)	0.02 (Z)
18 Dec 2024	0.3 (Z)	0.02 (Z)
19 Dec 2024	0.08 (Z)	0.06 (Z)
20 Dec 2024	0.06 (Z)	0.01 (Z)
21 Dec 2024	0.07 (Z)	0.01 (Z)
22 Dec 2024	0.05 (Z)	0.02 (Z)
23 Dec 2024	0.23 (Z)	0.03 (Z)
24 Dec 2024	0.14 (Z)	0.01 (Z)
25 Dec 2024	0.01 (Z)	0.01 (Z)
26 Dec 2024	0.02 (Z)	0.01 (Z)
27 Dec 2024	0.38 (Z)	0.01 (Z)
28 Dec 2024	0.42 (Z)	0.04 (Z)
29 Dec 2024	0.71 (Z)	0.11 (Z)
30 Dec 2024	0.9 (Z)	0.03 (Z)
31 Dec 2024	0.1 (Z)	0.01 (Z)
01 Jan 2025	0.01 (Z)	0.03 (Z)
02 Jan 2025	0.6 (Z)	0.04 (Z)
03 Jan 2025	0.13 (Z)	0.03 (Z)
04 Jan 2025	0.08 (Z)	0.01 (Z)
05 Jan 2025	0.01 (Z)	0.02 (Z)
06 Jan 2025	0.16 (Z)	0.02 (Z)
07 Jan 2025	0.05 (Z)	0.02 (Z)
08 Jan 2025	0.04 (Z)	0.02 (Z)

mm/s	Heritage - RTA Depot		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	1	1	2
10 Jan 2025	0	1	1
11 Jan 2025	1	3	4
12 Jan 2025	0	0	0
13 Jan 2025	0	1	1
14 Jan 2025	0	1	1
15 Jan 2025	0	0	1
16 Jan 2025	0	0	0
17 Jan 2025	1	2	2
18 Jan 2025	0	1	1
19 Jan 2025	0	0	0
	--	--	--

$m/s^{1.75}$	Heritage - RTA Depot	
Daily VDV	Day	Night
09 Jan 2025	0.23 (Z)	0.05 (Z)
10 Jan 2025	0.07 (Z)	0.01 (Z)
11 Jan 2025	0.14 (Z)	0.01 (Z)
12 Jan 2025	0.01 (Z)	0.02 (Z)
13 Jan 2025	0.06 (Z)	0.02 (Z)
14 Jan 2025	0.06 (Z)	0.02 (Z)
15 Jan 2025	0.05 (Z)	0.02 (Z)
16 Jan 2025	0.02 (Z)	0.02 (Z)
17 Jan 2025	0.09 (Z)	0.01 (Z)
18 Jan 2025	0.03 (Z)	0.01 (Z)
19 Jan 2025	0.02 (Z)	0.01 (Z)

mm/s	ATC - Rosehill Stables S		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	10	5	3
22 Oct 2024	7	5	3
23 Oct 2024	7	8	3
24 Oct 2024	6	7	3
25 Oct 2024	4	4	2
26 Oct 2024	11	10	5
27 Oct 2024	5	7	3
28 Oct 2024	3	9	3
29 Oct 2024	3	3	1
30 Oct 2024	1	1	1
31 Oct 2024	3	2	1
01 Nov 2024	2	2	1
02 Nov 2024	5	3	1
03 Nov 2024	4	4	3
04 Nov 2024	2	1	1
05 Nov 2024	3	4	3
06 Nov 2024	2	3	3
07 Nov 2024	3	1	1
08 Nov 2024	2	1	1
09 Nov 2024	1	1	1
10 Nov 2024	2	1	1
11 Nov 2024	1	1	1
12 Nov 2024	1	1	0
13 Nov 2024	1	1	0
14 Nov 2024	1	1	0
15 Nov 2024	2	1	0
16 Nov 2024	1	5	1
17 Nov 2024	1	1	1
18 Nov 2024	1	1	1
19 Nov 2024	2	1	2
20 Nov 2024	1	1	1
21 Nov 2024	1	1	1
22 Nov 2024	2	2	1
23 Nov 2024	3	3	1
24 Nov 2024	1	1	0
25 Nov 2024	1	1	1
26 Nov 2024	1	0	1
27 Nov 2024	2	2	1
28 Nov 2024	1	1	1
29 Nov 2024	1	1	1

$m/s^{1.75}$	ATC - Rosehill Stables S	
Daily VDV	Day	Night
21 Oct 2024	0.38 (Z)	0.03 (Z)
22 Oct 2024	0.18 (Z)	0.03 (Z)
23 Oct 2024	0.22 (Z)	0.05 (Z)
24 Oct 2024	0.36 (Z)	0.04 (Z)
25 Oct 2024	0.36 (Z)	0.01 (Z)
26 Oct 2024	0.55 (Z)	0.01 (Z)
27 Oct 2024	0.38 (Z)	0.04 (Z)
28 Oct 2024	0.46 (Z)	0.04 (Z)
29 Oct 2024	0.06 (Z)	0.04 (Z)
30 Oct 2024	0.08 (Z)	0.05 (Z)
31 Oct 2024	0.17 (Z)	0.03 (Z)
01 Nov 2024	0.07 (Z)	0.02 (Z)
02 Nov 2024	0.04 (Z)	0.01 (Z)
03 Nov 2024	0.06 (Z)	0.02 (Z)
04 Nov 2024	0.03 (Z)	0.02 (Z)
05 Nov 2024	0.18 (Z)	0.02 (Z)
06 Nov 2024	0.29 (Z)	0.03 (Z)
07 Nov 2024	0.09 (Z)	0.03 (Z)
08 Nov 2024	0.05 (Z)	0.02 (Z)
09 Nov 2024	0.03 (Z)	0.01 (Z)
10 Nov 2024	0.02 (Z)	0.02 (Z)
11 Nov 2024	0.03 (Z)	0.02 (Z)
12 Nov 2024	0.03 (Z)	0.02 (Z)
13 Nov 2024	0.03 (Z)	0.02 (Z)
14 Nov 2024	0.03 (Z)	0.03 (Z)
15 Nov 2024	0.03 (Z)	0.02 (Z)
16 Nov 2024	0.02 (Z)	0.02 (Y)
17 Nov 2024	0.03 (Z)	0.04 (Z)
18 Nov 2024	0.05 (Z)	0.03 (Z)
19 Nov 2024	0.03 (Z)	0.03 (Z)
20 Nov 2024	0.03 (Z)	0.02 (Z)
21 Nov 2024	0.03 (Z)	0.02 (Z)
22 Nov 2024	0.05 (Z)	0.03 (Z)
23 Nov 2024	0.02 (Z)	0.01 (Z)
24 Nov 2024	0.02 (Z)	0.02 (Z)
25 Nov 2024	0.05 (Z)	0.02 (Z)
26 Nov 2024	0.03 (Z)	0.02 (Z)
27 Nov 2024	0.03 (Z)	0.02 (Z)
28 Nov 2024	0.04 (Z)	0.02 (Z)
29 Nov 2024	0.04 (Z)	0.04 (Z)

mm/s	ATC - Rosehill Stables S		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	1	1	1
01 Dec 2024	1	1	1
02 Dec 2024	3	4	2
03 Dec 2024	1	1	1
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	0	1	1
13 Dec 2024	3	4	2
14 Dec 2024	3	4	2
15 Dec 2024	0	0	0
16 Dec 2024	3	4	3
17 Dec 2024	2	4	3
18 Dec 2024	3	6	2
19 Dec 2024	3	2	2
20 Dec 2024	1	1	1
21 Dec 2024	3	3	1
22 Dec 2024	1	0	0
23 Dec 2024	2	2	1
24 Dec 2024	2	2	2
25 Dec 2024	0	1	0
26 Dec 2024	1	1	0
27 Dec 2024	3	5	2
28 Dec 2024	2	3	2
29 Dec 2024	2	5	3
30 Dec 2024	3	5	3
31 Dec 2024	1	1	1
01 Jan 2025	1	0	0
02 Jan 2025	2	5	3
03 Jan 2025	1	1	1
04 Jan 2025	1	1	1
05 Jan 2025	2	2	1
06 Jan 2025	1	1	1
07 Jan 2025	1	1	1
08 Jan 2025	1	1	2

$m/s^{1.75}$	ATC - Rosehill Stables S	
Daily VDV	Day	Night
30 Nov 2024	0.04 (Z)	0.03 (Z)
01 Dec 2024	0.04 (Z)	0.05 (Z)
02 Dec 2024	0.04 (Z)	0.04 (Z)
03 Dec 2024	0.02 (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	0.03 (Z)	0.03 (Z)
13 Dec 2024	0.28 (Z)	0.02 (Z)
14 Dec 2024	0.42 (Z)	0.01 (Z)
15 Dec 2024	0.02 (Z)	0.02 (Z)
16 Dec 2024	0.39 (Z)	0.18 (Z)
17 Dec 2024	0.18 (Z)	0.02 (Z)
18 Dec 2024	0.28 (Z)	0.02 (Z)
19 Dec 2024	0.07 (Z)	0.05 (Z)
20 Dec 2024	0.04 (Z)	0.01 (Z)
21 Dec 2024	0.05 (Z)	0.01 (Z)
22 Dec 2024	0.03 (Z)	0.02 (Z)
23 Dec 2024	0.12 (Z)	0.02 (Z)
24 Dec 2024	0.1 (Z)	0.01 (Z)
25 Dec 2024	0.01 (Z)	0.01 (Z)
26 Dec 2024	0.02 (Z)	0.01 (Z)
27 Dec 2024	0.29 (Z)	0.01 (Z)
28 Dec 2024	0.19 (Z)	0.03 (Z)
29 Dec 2024	0.37 (Z)	0.05 (Z)
30 Dec 2024	0.45 (Z)	0.02 (Z)
31 Dec 2024	0.04 (Z)	0.01 (Z)
01 Jan 2025	0.01 (Z)	0.02 (Z)
02 Jan 2025	0.33 (Z)	0.03 (Z)
03 Jan 2025	0.09 (Z)	0.02 (Z)
04 Jan 2025	0.05 (Z)	0.01 (Z)
05 Jan 2025	0.01 (Z)	0.02 (Z)
06 Jan 2025	0.05 (Z)	0.02 (Z)
07 Jan 2025	0.04 (Z)	0.02 (Z)
08 Jan 2025	0.04 (Z)	0.03 (Z)

mm/s	ATC - Rosehill Stables S		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	2	2	1
10 Jan 2025	1	1	1
11 Jan 2025	3	3	2
12 Jan 2025	1	1	1
13 Jan 2025	1	1	1
14 Jan 2025	1	1	0
15 Jan 2025	2	1	1
16 Jan 2025	1	1	1
17 Jan 2025	1	1	1
18 Jan 2025	1	1	1
19 Jan 2025	1	1	1
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$m/s^{1.75}$	ATC - Rosehill Stables S	
Daily VDV	Day	Night
09 Jan 2025	0.15 (Z)	0.03 (Z)
10 Jan 2025	0.04 (Z)	0.04 (Z)
11 Jan 2025	0.09 (Z)	0.02 (Z)
12 Jan 2025	0.03 (Z)	0.02 (Z)
13 Jan 2025	0.04 (Z)	0.02 (Z)
14 Jan 2025	0.03 (Z)	0.02 (Z)
15 Jan 2025	0.05 (Z)	0.03 (Z)
16 Jan 2025	0.03 (Z)	0.02 (Z)
17 Jan 2025	0.04 (Z)	0.02 (Z)
18 Jan 2025	0.02 (Z)	0.02 (Z)
19 Jan 2025	0.02 (Z)	0.02 (Z)

Daily Notes

Date and time	By	Monitoring Point(s)	Note
21 Oct 2024	Daniel		ATC - Rosehill Stables South, 10t Roller >15m from Stables Boundary, vegetated fill between activity and receiver stable foundation Evidence of Non-GLC contractors constructing timber hoarding along ATC premise boundary.
31 Oct 2024	Tam		VIB-000124 9:00am set up and test monitor prior to deployment at stakeholder location at 10:00am
31 Oct 2024	Daniel		ATC Stables South - Asphalting works of northern Unwin St eastbound lane
04 Nov 2024	Daniel		RTA Depot Vibration Monitor VIB0057 Battery removed for recharging (RDO day) no works occurring on Monday @ 08.30am
05 Nov 2024	Daniel		VIB0057 Battery reinstalled at approx. 07:30am, monitor relocated approx. 10m east of position adjacent to RTA brick wall facade
06 Nov 2024	Daniel		Rockbreaking of Unwin St Southbound hardstand road within 4.5m of Heritage curtilage at the closest point. Using a 25T Excavator with rock breaker. 4.5m between works and heritage zone includes grassy verge, tree/roots and utilities pipelines with sand fill.
03 Dec 2024	Daniel		ATC Vibration monitor battery removed for recharge. No works were being undertaken on this day
04 Dec 2024	Daniel		Hexanode 236 installed on Northern Unwin St
06 Dec 2024	Daniel		Heritage RTA Depot vibration monitor battery reinstalled approx 7am this morning
12 Dec 2024	Daniel		ATC Stables South - Battery reinstalled
18 Dec 2024	Daniel		Northern Unwin St Tie-in 14T vibratory Roller compacting earthworks of westbound lane 15:30. approx 8m from RTA Depot

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
VIB-000057	-	SiteHive Hexanode	07 Sep 2023	07 Sep 2025
VIB-000007	CFA Piling (Ausgrid) - Section 6 MSF East	SiteHive Hexanode	-	-
VIB-000057	Heritage - RTA Depot	SiteHive Hexanode	07 Sep 2023	07 Sep 2025
VIB-000126	ATC - Rosehill Stables South	SiteHive Hexanode	06 Mar 2024	06 Mar 2026

Gamuda Laing O'Rourke

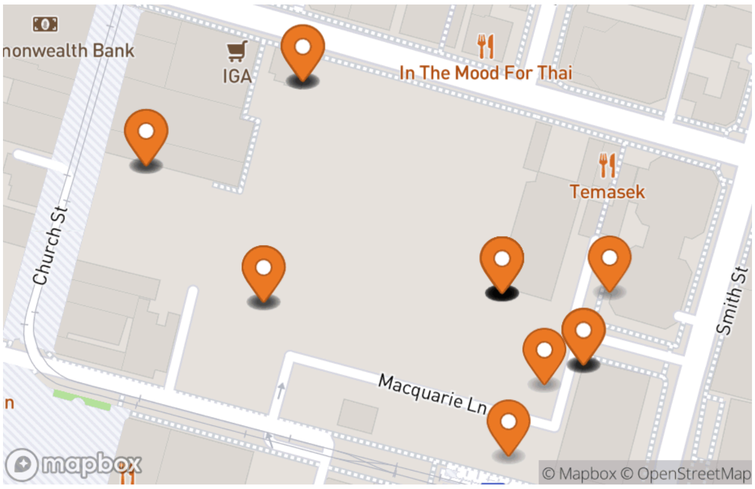
Sydney Metro West WTP Parramatta

Unattended Vibration Monitoring 20Jul24_20Oct24 Parramatta

Monitoring Devices

Date Range 20 Jul 2024 - 20 Oct 2024

Device Serial	Monitoring Points
LECIYE	George St Shops, 218 Church Street, Town/Convict Drain
FIBISA	240 Church Street Parramatta
GEGAWE	Roxy Theatre
VIB-000182	-
VIB-000182	New Macquarie Lane Hoarding
VIB-000174	-
VIB-000197	25 Smith Street, 75 George St
VIB-000206	25 Smith Street
VIB-000208	Roxy Theatre



Vibration Monitoring Statistics

Roxy Theatre

Value	Unit	Statistic
381	mm/s	MAXIMUM X Peak
248	mm/s	MAXIMUM Y Peak
277	mm/s	MAXIMUM Z Peak

Roxy Theatre

Value	Unit	Statistic
1.88	$m/s^{1.75}$	MAXIMUM X VDV
0.94	$m/s^{1.75}$	MAXIMUM Y VDV
4.39	$m/s^{1.75}$	MAXIMUM Z VDV

George St Shops

Value	Unit	Statistic
0	mm/s	MAXIMUM X Peak
0	mm/s	MAXIMUM Y Peak
1	mm/s	MAXIMUM Z Peak

George St Shops

Value	Unit	Statistic
--	$m/s^{1.75}$	MAXIMUM X VDV
0.01	$m/s^{1.75}$	MAXIMUM Y VDV
0.06	$m/s^{1.75}$	MAXIMUM Z VDV

240 Church Street Parram...

Value	Unit	Statistic
285	mm/s	MAXIMUM X Peak
93	mm/s	MAXIMUM Y Peak
170	mm/s	MAXIMUM Z Peak

240 Church Street Parram...

Value	Unit	Statistic
1.14	$m/s^{1.75}$	MAXIMUM X VDV
0.42	$m/s^{1.75}$	MAXIMUM Y VDV
3.04	$m/s^{1.75}$	MAXIMUM Z VDV

New Macquarie Lane Hoa...

Value	Unit	Statistic
2273	mm/s	MAXIMUM X Peak
1729	mm/s	MAXIMUM Y Peak
3068	mm/s	MAXIMUM Z Peak

New Macquarie Lane Hoa...

Value	Unit	Statistic
5.54	$m/s^{1.75}$	MAXIMUM X VDV
5.55	$m/s^{1.75}$	MAXIMUM Y VDV
4.46	$m/s^{1.75}$	MAXIMUM Z VDV

25 Smith Street

Value	Unit	Statistic
5	mm/s	MAXIMUM X Peak
9	mm/s	MAXIMUM Y Peak
5	mm/s	MAXIMUM Z Peak

25 Smith Street

Value	Unit	Maximum
0.01	$m/s^{1.75}$	X VDV
0.01	$m/s^{1.75}$	Y VDV
0.04	$m/s^{1.75}$	Z VDV

218 Church Street

Value	Unit	Maximum
462	mm/s	X Peak
329	mm/s	Y Peak
740	mm/s	Z Peak

218 Church Street

Value	Unit	Maximum
2.72	$m/s^{1.75}$	X VDV
2.5	$m/s^{1.75}$	Y VDV
4.82	$m/s^{1.75}$	Z VDV

75 George St

Value	Unit	Maximum
33	mm/s	X Peak
22	mm/s	Y Peak
14	mm/s	Z Peak

75 George St

Value	Unit	Maximum
0.04	$m/s^{1.75}$	X VDV
0.05	$m/s^{1.75}$	Y VDV
0.47	$m/s^{1.75}$	Z VDV

Town/Convict Drain

Value	Unit	Maximum
3	mm/s	X Peak
3	mm/s	Y Peak
1	mm/s	Z Peak

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	0	0	0
21 Jul 2024	0	0	0
22 Jul 2024	0	0	0
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	75	53	31
10 Aug 2024	1	1	1
11 Aug 2024	0	0	0
12 Aug 2024	0	1	1
13 Aug 2024	1	1	1
14 Aug 2024	1	1	1
15 Aug 2024	0	1	0
16 Aug 2024	1	1	1
17 Aug 2024	2	1	4
18 Aug 2024	0	1	0
19 Aug 2024	58	17	7
20 Aug 2024	1	1	1
21 Aug 2024	0	0	0
22 Aug 2024	2	1	12
23 Aug 2024	1	1	1
24 Aug 2024	1	1	0
25 Aug 2024	0	0	0
26 Aug 2024	1	1	1
27 Aug 2024	1	1	1
28 Aug 2024	1	1	1

$m/s^{1.75}$	Roxy Theatre	
Daily VDV	Day	Night
20 Jul 2024	0.01 (Z)	0.01 (Z)
21 Jul 2024	0.01 (Z)	0.01 (Z)
22 Jul 2024	0.01 (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	-- (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	-- (Z)	-- (Z)
02 Aug 2024	-- (Z)	-- (Z)
03 Aug 2024	-- (Z)	-- (Z)
04 Aug 2024	-- (Z)	-- (Z)
05 Aug 2024	-- (Z)	-- (Z)
06 Aug 2024	-- (Z)	-- (Z)
07 Aug 2024	-- (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	0.52 (Z)	0.02 (Z)
10 Aug 2024	0.06 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.02 (Z)
12 Aug 2024	0.05 (Z)	0.01 (Z)
13 Aug 2024	0.05 (Z)	0.01 (Z)
14 Aug 2024	0.04 (Z)	0.01 (Z)
15 Aug 2024	0.03 (Z)	0.01 (Z)
16 Aug 2024	0.05 (Z)	0.01 (Z)
17 Aug 2024	0.04 (Z)	0.01 (Z)
18 Aug 2024	0.02 (Z)	0.01 (Z)
19 Aug 2024	0.26 (X)	0.02 (Z)
20 Aug 2024	0.06 (Z)	0.02 (Z)
21 Aug 2024	0.02 (Z)	0.01 (Z)
22 Aug 2024	0.08 (Z)	0.03 (Z)
23 Aug 2024	0.04 (Z)	0.02 (Z)
24 Aug 2024	0.04 (Z)	0.01 (Z)
25 Aug 2024	0.03 (Z)	0.03 (Z)
26 Aug 2024	0.07 (Z)	0.01 (Z)
27 Aug 2024	0.07 (Z)	0.03 (Z)
28 Aug 2024	0.05 (Z)	0.02 (Z)

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	1	0	1
30 Aug 2024	0	0	0
31 Aug 2024	0	0	0
01 Sep 2024	0	0	0
02 Sep 2024	1	1	1
03 Sep 2024	381	189	277
04 Sep 2024	1	1	1
05 Sep 2024	1	1	2
06 Sep 2024	2	2	4
07 Sep 2024	1	0	0
08 Sep 2024	0	0	0
09 Sep 2024	1	1	1
10 Sep 2024	0	0	0
11 Sep 2024	1	0	0
12 Sep 2024	1	1	1
13 Sep 2024	1	1	2
14 Sep 2024	3	3	19
15 Sep 2024	1	1	0
16 Sep 2024	1	1	1
17 Sep 2024	1	1	1
18 Sep 2024	1	1	1
19 Sep 2024	1	2	1
20 Sep 2024	1	0	0
21 Sep 2024	1	2	9
22 Sep 2024	0	0	2
23 Sep 2024	0	0	0
24 Sep 2024	0	0	0
25 Sep 2024	1	0	1
26 Sep 2024	1	0	1
27 Sep 2024	1	1	0
28 Sep 2024	0	0	0
29 Sep 2024	0	0	0
30 Sep 2024	1	0	0
01 Oct 2024	4	5	7
02 Oct 2024	2	2	1
03 Oct 2024	0	0	0
04 Oct 2024	1	1	3
05 Oct 2024	1	1	2
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$	Roxy Theatre	
Daily VDV	Day	Night
29 Aug 2024	0.03 (Z)	0.01 (Z)
30 Aug 2024	0.03 (Z)	0.02 (Z)
31 Aug 2024	0.01 (Z)	0.01 (Z)
01 Sep 2024	0.01 (Z)	0.01 (Z)
02 Sep 2024	0.02 (Z)	0.01 (Z)
03 Sep 2024	4.39 (Z)	0.02 (Z)
04 Sep 2024	0.03 (Z)	0.02 (Z)
05 Sep 2024	0.03 (Z)	0.02 (Z)
06 Sep 2024	0.07 (Z)	0.01 (Z)
07 Sep 2024	0.02 (Z)	0.01 (Z)
08 Sep 2024	0.01 (Z)	0.01 (Z)
09 Sep 2024	0.02 (Z)	0.01 (Z)
10 Sep 2024	0.02 (Z)	0.01 (Z)
11 Sep 2024	0.02 (Z)	0.01 (Z)
12 Sep 2024	0.04 (Z)	0.01 (Z)
13 Sep 2024	0.05 (Z)	0.01 (Z)
14 Sep 2024	0.2 (Z)	0.01 (Z)
15 Sep 2024	0.01 (Z)	0.01 (Z)
16 Sep 2024	0.05 (Z)	0.01 (Z)
17 Sep 2024	0.02 (Z)	0.01 (Z)
18 Sep 2024	0.05 (Z)	0.01 (Z)
19 Sep 2024	0.04 (Z)	0.01 (Z)
20 Sep 2024	0.02 (Z)	0.01 (Z)
21 Sep 2024	0.06 (Z)	0.01 (Z)
22 Sep 2024	0.01 (Z)	0.01 (Z)
23 Sep 2024	0.02 (Z)	0.01 (Z)
24 Sep 2024	0.02 (Z)	0.01 (Z)
25 Sep 2024	0.04 (Z)	0.01 (Z)
26 Sep 2024	0.02 (Z)	0.01 (Z)
27 Sep 2024	0.03 (Z)	0.01 (Z)
28 Sep 2024	0.01 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.01 (Z)
30 Sep 2024	0.03 (Z)	0.02 (Y)
01 Oct 2024	0.07 (Z)	0.01 (Z)
02 Oct 2024	0.02 (Z)	0.01 (Z)
03 Oct 2024	0.02 (Z)	0.02 (Z)
04 Oct 2024	0.04 (Z)	0.01 (Z)
05 Oct 2024	0.03 (Z)	0.02 (Z)
06 Oct 2024	0.02 (Z)	0.01 (Z)
07 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	1	0	1
09 Oct 2024	218	165	160
10 Oct 2024	259	248	191
11 Oct 2024	125	81	47
12 Oct 2024	0	0	0
13 Oct 2024	0	0	0
14 Oct 2024	6	8	2
15 Oct 2024	1	1	1
16 Oct 2024	1	1	2
17 Oct 2024	1	0	1
18 Oct 2024	0	0	0
19 Oct 2024	0	0	1
20 Oct 2024	1	0	1
	--	--	--

$m/s^{1.75}$	Roxy Theatre	
Daily VDV	Day	Night
08 Oct 2024	0.03 (Z)	0.01 (Z)
09 Oct 2024	3.8 (Z)	0.01 (Z)
10 Oct 2024	2.21 (Z)	0.03 (Z)
11 Oct 2024	1.29 (Z)	0.01 (Z)
12 Oct 2024	0.02 (Z)	0.01 (Z)
13 Oct 2024	0.01 (Z)	0.04 (Z)
14 Oct 2024	0.09 (Z)	0.01 (Z)
15 Oct 2024	0.09 (Z)	0.01 (Z)
16 Oct 2024	0.04 (Z)	0.01 (Z)
17 Oct 2024	0.04 (Z)	0.01 (Z)
18 Oct 2024	0.03 (Z)	0.01 (Z)
19 Oct 2024	0.06 (Z)	0.01 (Z)
20 Oct 2024	0.04 (Z)	0.02 (Z)

mm/s	George St Shops		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	0	0	0
21 Jul 2024	0	0	0
22 Jul 2024	0	0	1
23 Jul 2024	0	0	1
24 Jul 2024	0	0	0
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	--	--	--
10 Aug 2024	--	--	--
11 Aug 2024	--	--	--
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

$m/s^{1.75}$	George St Shops	
Daily VDV	Day	Night
20 Jul 2024	0.02 (Z)	0.01 (Z)
21 Jul 2024	0.01 (Z)	0.02 (Z)
22 Jul 2024	0.06 (Z)	0.01 (Z)
23 Jul 2024	0.03 (Z)	0.02 (Z)
24 Jul 2024	0.03 (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	-- (Z)	-- (Z)
02 Aug 2024	-- (Z)	-- (Z)
03 Aug 2024	-- (Z)	-- (Z)
04 Aug 2024	-- (Z)	-- (Z)
05 Aug 2024	-- (Z)	-- (Z)
06 Aug 2024	-- (Z)	-- (Z)
07 Aug 2024	-- (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	-- (Z)	-- (Z)
10 Aug 2024	-- (Z)	-- (Z)
11 Aug 2024	-- (Z)	-- (Z)
12 Aug 2024	-- (Z)	-- (Z)
13 Aug 2024	-- (Z)	-- (Z)
14 Aug 2024	-- (Z)	-- (Z)
15 Aug 2024	-- (Z)	-- (Z)
16 Aug 2024	-- (Z)	-- (Z)
17 Aug 2024	-- (Z)	-- (Z)
18 Aug 2024	-- (Z)	-- (Z)
19 Aug 2024	-- (Z)	-- (Z)
20 Aug 2024	-- (Z)	-- (Z)
21 Aug 2024	-- (Z)	-- (Z)
22 Aug 2024	-- (Z)	-- (Z)
23 Aug 2024	-- (Z)	-- (Z)
24 Aug 2024	-- (Z)	-- (Z)
25 Aug 2024	-- (Z)	-- (Z)
26 Aug 2024	-- (Z)	-- (Z)
27 Aug 2024	-- (Z)	-- (Z)
28 Aug 2024	-- (Z)	-- (Z)

mm/s	George St Shops		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	--	--	--
14 Sep 2024	--	--	--
15 Sep 2024	--	--	--
16 Sep 2024	--	--	--
17 Sep 2024	--	--	--
18 Sep 2024	--	--	--
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	--	--	--
26 Sep 2024	--	--	--
27 Sep 2024	--	--	--
28 Sep 2024	--	--	--
29 Sep 2024	--	--	--
30 Sep 2024	--	--	--
01 Oct 2024	--	--	--
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

$m/s^{1.75}$	George St Shops	
Daily VDV	Day	Night
29 Aug 2024	-- (Z)	-- (Z)
30 Aug 2024	-- (Z)	-- (Z)
31 Aug 2024	-- (Z)	-- (Z)
01 Sep 2024	-- (Z)	-- (Z)
02 Sep 2024	-- (Z)	-- (Z)
03 Sep 2024	-- (Z)	-- (Z)
04 Sep 2024	-- (Z)	-- (Z)
05 Sep 2024	-- (Z)	-- (Z)
06 Sep 2024	-- (Z)	-- (Z)
07 Sep 2024	-- (Z)	-- (Z)
08 Sep 2024	-- (Z)	-- (Z)
09 Sep 2024	-- (Z)	-- (Z)
10 Sep 2024	-- (Z)	-- (Z)
11 Sep 2024	-- (Z)	-- (Z)
12 Sep 2024	-- (Z)	-- (Z)
13 Sep 2024	-- (Z)	-- (Z)
14 Sep 2024	-- (Z)	-- (Z)
15 Sep 2024	-- (Z)	-- (Z)
16 Sep 2024	-- (Z)	-- (Z)
17 Sep 2024	-- (Z)	-- (Z)
18 Sep 2024	-- (Z)	-- (Z)
19 Sep 2024	-- (Z)	-- (Z)
20 Sep 2024	-- (Z)	-- (Z)
21 Sep 2024	-- (Z)	-- (Z)
22 Sep 2024	-- (Z)	-- (Z)
23 Sep 2024	-- (Z)	-- (Z)
24 Sep 2024	-- (Z)	-- (Z)
25 Sep 2024	-- (Z)	-- (Z)
26 Sep 2024	-- (Z)	-- (Z)
27 Sep 2024	-- (Z)	-- (Z)
28 Sep 2024	-- (Z)	-- (Z)
29 Sep 2024	-- (Z)	-- (Z)
30 Sep 2024	-- (Z)	-- (Z)
01 Oct 2024	-- (Z)	-- (Z)
02 Oct 2024	-- (Z)	-- (Z)
03 Oct 2024	-- (Z)	-- (Z)
04 Oct 2024	-- (Z)	-- (Z)
05 Oct 2024	-- (Z)	-- (Z)
06 Oct 2024	-- (Z)	-- (Z)
07 Oct 2024	-- (Z)	-- (Z)

mm/s	George St Shops		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	--	--	--
17 Oct 2024	--	--	--
18 Oct 2024	--	--	--
19 Oct 2024	--	--	--
20 Oct 2024	--	--	--
	--	--	--

$m/s^{1.75}$	George St Shops	
Daily VDV	Day	Night
08 Oct 2024	-- (Z)	-- (Z)
09 Oct 2024	-- (Z)	-- (Z)
10 Oct 2024	-- (Z)	-- (Z)
11 Oct 2024	-- (Z)	-- (Z)
12 Oct 2024	-- (Z)	-- (Z)
13 Oct 2024	-- (Z)	-- (Z)
14 Oct 2024	-- (Z)	-- (Z)
15 Oct 2024	-- (Z)	-- (Z)
16 Oct 2024	-- (Z)	-- (Z)
17 Oct 2024	-- (Z)	-- (Z)
18 Oct 2024	-- (Z)	-- (Z)
19 Oct 2024	-- (Z)	-- (Z)
20 Oct 2024	-- (Z)	-- (Z)

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	1	1	1
25 Jul 2024	2	3	5
26 Jul 2024	0	1	1
27 Jul 2024	1	1	2
28 Jul 2024	0	0	0
29 Jul 2024	1	1	2
30 Jul 2024	0	0	0
31 Jul 2024	0	0	0
01 Aug 2024	285	93	170
02 Aug 2024	1	2	1
03 Aug 2024	1	1	2
04 Aug 2024	0	0	0
05 Aug 2024	1	1	1
06 Aug 2024	1	1	1
07 Aug 2024	3	15	5
08 Aug 2024	1	1	1
09 Aug 2024	1	2	2
10 Aug 2024	0	1	1
11 Aug 2024	0	0	0
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

$m/s^{1.75}$	240 Church Street Parr	
Daily VDV	Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	0.06 (Z)	0.01 (Z)
25 Jul 2024	0.55 (Z)	0.01 (Z)
26 Jul 2024	0.06 (Z)	0.01 (Z)
27 Jul 2024	0.17 (Z)	0.01 (Z)
28 Jul 2024	0.01 (Z)	0.01 (Z)
29 Jul 2024	0.09 (Z)	0.01 (Z)
30 Jul 2024	0.04 (Z)	0.01 (Z)
31 Jul 2024	0.03 (Z)	0.01 (Z)
01 Aug 2024	3.04 (Z)	0.01 (Z)
02 Aug 2024	0.11 (Z)	0.01 (Z)
03 Aug 2024	0.08 (Z)	0.01 (Z)
04 Aug 2024	0.01 (Z)	0.01 (Z)
05 Aug 2024	0.07 (Z)	0.02 (Z)
06 Aug 2024	0.09 (Z)	0.02 (Z)
07 Aug 2024	0.23 (Z)	0.02 (Z)
08 Aug 2024	0.06 (Z)	0.02 (Z)
09 Aug 2024	0.07 (Z)	0.02 (Z)
10 Aug 2024	0.06 (Z)	0.01 (Z)
11 Aug 2024	-- (Z)	-- (Z)
12 Aug 2024	-- (Z)	-- (Z)
13 Aug 2024	-- (Z)	-- (Z)
14 Aug 2024	-- (Z)	-- (Z)
15 Aug 2024	-- (Z)	-- (Z)
16 Aug 2024	-- (Z)	-- (Z)
17 Aug 2024	-- (Z)	-- (Z)
18 Aug 2024	-- (Z)	-- (Z)
19 Aug 2024	-- (Z)	-- (Z)
20 Aug 2024	-- (Z)	-- (Z)
21 Aug 2024	-- (Z)	-- (Z)
22 Aug 2024	-- (Z)	-- (Z)
23 Aug 2024	-- (Z)	-- (Z)
24 Aug 2024	-- (Z)	-- (Z)
25 Aug 2024	-- (Z)	-- (Z)
26 Aug 2024	-- (Z)	-- (Z)
27 Aug 2024	-- (Z)	-- (Z)
28 Aug 2024	-- (Z)	-- (Z)

mm/s Daily Max	240 Church Street Parr X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	--	--	--
14 Sep 2024	--	--	--
15 Sep 2024	--	--	--
16 Sep 2024	--	--	--
17 Sep 2024	--	--	--
18 Sep 2024	--	--	--
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	0	1	1
26 Sep 2024	0	0	0
27 Sep 2024	0	1	1
28 Sep 2024	0	0	1
29 Sep 2024	0	0	0
30 Sep 2024	10	11	4
01 Oct 2024	0	1	1
02 Oct 2024	0	1	1
03 Oct 2024	1	3	2
04 Oct 2024	0	0	1
05 Oct 2024	0	1	1
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$ Daily VDV	240 Church Street Parr Day	Night
29 Aug 2024	-- (Z)	-- (Z)
30 Aug 2024	-- (Z)	-- (Z)
31 Aug 2024	-- (Z)	-- (Z)
01 Sep 2024	-- (Z)	-- (Z)
02 Sep 2024	-- (Z)	-- (Z)
03 Sep 2024	-- (Z)	-- (Z)
04 Sep 2024	-- (Z)	-- (Z)
05 Sep 2024	-- (Z)	-- (Z)
06 Sep 2024	-- (Z)	-- (Z)
07 Sep 2024	-- (Z)	-- (Z)
08 Sep 2024	-- (Z)	-- (Z)
09 Sep 2024	-- (Z)	-- (Z)
10 Sep 2024	-- (Z)	-- (Z)
11 Sep 2024	-- (Z)	-- (Z)
12 Sep 2024	-- (Z)	-- (Z)
13 Sep 2024	-- (Z)	-- (Z)
14 Sep 2024	-- (Z)	-- (Z)
15 Sep 2024	-- (Z)	-- (Z)
16 Sep 2024	-- (Z)	-- (Z)
17 Sep 2024	-- (Z)	-- (Z)
18 Sep 2024	-- (Z)	-- (Z)
19 Sep 2024	-- (Z)	-- (Z)
20 Sep 2024	-- (Z)	-- (Z)
21 Sep 2024	-- (Z)	-- (Z)
22 Sep 2024	-- (Z)	-- (Z)
23 Sep 2024	-- (Z)	-- (Z)
24 Sep 2024	-- (Z)	-- (Z)
25 Sep 2024	0.04 (Z)	0.01 (Z)
26 Sep 2024	0.08 (Z)	0.01 (Z)
27 Sep 2024	0.06 (Z)	0.01 (Z)
28 Sep 2024	0.03 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.02 (Z)
30 Sep 2024	0.09 (Z)	0.01 (Z)
01 Oct 2024	0.06 (Z)	0.01 (Z)
02 Oct 2024	0.06 (Z)	0.01 (Z)
03 Oct 2024	0.08 (Z)	0.01 (Z)
04 Oct 2024	0.03 (Z)	0.01 (Z)
05 Oct 2024	0.02 (Z)	0.01 (Z)
06 Oct 2024	0.02 (Z)	0.01 (Z)
07 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	0	0
09 Oct 2024	0	1	1
10 Oct 2024	1	2	2
11 Oct 2024	0	1	2
12 Oct 2024	0	1	1
13 Oct 2024	0	0	2
14 Oct 2024	1	2	2
15 Oct 2024	1	2	2
16 Oct 2024	0	1	1
17 Oct 2024	1	2	2
18 Oct 2024	1	1	2
19 Oct 2024	1	1	3
20 Oct 2024	0	0	0
	--	--	--

$m/s^{1.75}$	240 Church Street Parr	
Daily VDV	Day	Night
08 Oct 2024	0.03 (Z)	0.01 (Z)
09 Oct 2024	0.05 (Z)	0.01 (Z)
10 Oct 2024	0.08 (Z)	0.01 (Z)
11 Oct 2024	0.06 (Z)	0.01 (Z)
12 Oct 2024	0.05 (Z)	0.01 (Z)
13 Oct 2024	0.06 (Z)	0.01 (Z)
14 Oct 2024	0.07 (Z)	0.01 (Z)
15 Oct 2024	0.09 (Z)	0.01 (Z)
16 Oct 2024	0.08 (Z)	0.01 (Z)
17 Oct 2024	0.09 (Z)	0.01 (Z)
18 Oct 2024	0.11 (Z)	0.01 (Z)
19 Oct 2024	0.09 (Z)	0.01 (Z)
20 Oct 2024	0.02 (Z)	0.01 (Z)

mm/s	New Macquarie Lane H		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	0	0	0
21 Jul 2024	0	0	0
22 Jul 2024	1	0	0
23 Jul 2024	0	0	0
24 Jul 2024	1	0	0
25 Jul 2024	1	0	0
26 Jul 2024	0	0	0
27 Jul 2024	0	0	0
28 Jul 2024	0	0	0
29 Jul 2024	0	0	1
30 Jul 2024	1	0	1
31 Jul 2024	0	0	1
01 Aug 2024	1	0	0
02 Aug 2024	1	0	0
03 Aug 2024	1	1	1
04 Aug 2024	0	0	0
05 Aug 2024	0	0	0
06 Aug 2024	0	0	0
07 Aug 2024	5	2	2
08 Aug 2024	7	2	4
09 Aug 2024	2	1	2
10 Aug 2024	2	1	3
11 Aug 2024	0	0	0
12 Aug 2024	2	1	1
13 Aug 2024	1	1	1
14 Aug 2024	1	1	1
15 Aug 2024	2	2	2
16 Aug 2024	1	1	1
17 Aug 2024	1	1	1
18 Aug 2024	1	0	1
19 Aug 2024	1	1	1
20 Aug 2024	1	1	1
21 Aug 2024	1	1	1
22 Aug 2024	1	1	1
23 Aug 2024	1	1	1
24 Aug 2024	2	2	1
25 Aug 2024	1	1	1
26 Aug 2024	1	1	1
27 Aug 2024	1	1	1
28 Aug 2024	1594	334	1629

$m/s^{1.75}$	New Macquarie Lane H	
Daily VDV	Day	Night
20 Jul 2024	0.02 (Z)	0.01 (Z)
21 Jul 2024	0.01 (Z)	0.02 (Z)
22 Jul 2024	0.02 (Z)	0.02 (Z)
23 Jul 2024	0.03 (Z)	0.02 (Z)
24 Jul 2024	0.03 (Z)	0.02 (Z)
25 Jul 2024	0.03 (Z)	0.02 (Z)
26 Jul 2024	0.03 (Z)	0.01 (Z)
27 Jul 2024	0.01 (Z)	0.01 (Z)
28 Jul 2024	0.01 (Z)	0.01 (Z)
29 Jul 2024	0.02 (Z)	0.01 (Z)
30 Jul 2024	0.03 (Z)	0.01 (Z)
31 Jul 2024	0.02 (Z)	0.01 (Z)
01 Aug 2024	0.02 (Z)	0.01 (Z)
02 Aug 2024	0.02 (Z)	0.02 (Z)
03 Aug 2024	0.02 (Z)	0.01 (Z)
04 Aug 2024	0.01 (Z)	0.01 (Z)
05 Aug 2024	0.02 (Z)	0.01 (Z)
06 Aug 2024	0.01 (Z)	0.01 (Z)
07 Aug 2024	0.11 (Z)	0.01 (Z)
08 Aug 2024	0.2 (Z)	0.01 (Z)
09 Aug 2024	0.12 (Z)	0.01 (Z)
10 Aug 2024	0.14 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.01 (Z)
12 Aug 2024	0.09 (Z)	0.01 (Z)
13 Aug 2024	0.08 (Z)	0.01 (Z)
14 Aug 2024	0.04 (Z)	0.01 (Z)
15 Aug 2024	0.04 (Z)	0.01 (Z)
16 Aug 2024	0.07 (Z)	0.06 (Z)
17 Aug 2024	0.01 (Z)	0.01 (Z)
18 Aug 2024	0.06 (Z)	0.02 (Z)
19 Aug 2024	0.02 (Z)	0.08 (Z)
20 Aug 2024	0.07 (Z)	0.04 (Z)
21 Aug 2024	0.08 (Z)	0.08 (Z)
22 Aug 2024	0.08 (Z)	0.06 (Z)
23 Aug 2024	0.07 (Z)	0.1 (Z)
24 Aug 2024	0.02 (Z)	0.01 (Z)
25 Aug 2024	0.07 (Z)	0.07 (Z)
26 Aug 2024	0.07 (Z)	0.08 (Z)
27 Aug 2024	0.06 (Z)	0.06 (Z)
28 Aug 2024	3.91 (X)	-- (Z)

mm/s	New Macquarie Lane H		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	0	0	1
30 Aug 2024	1	1	1
31 Aug 2024	2	1	2
01 Sep 2024	29	20	11
02 Sep 2024	3	2	2
03 Sep 2024	1	1	1
04 Sep 2024	1	1	1
05 Sep 2024	2273	1729	3068
06 Sep 2024	3	2	2
07 Sep 2024	4	3	3
08 Sep 2024	2	1	1
09 Sep 2024	2	2	2
10 Sep 2024	2	2	2
11 Sep 2024	2	2	1
12 Sep 2024	2	2	1
13 Sep 2024	2	2	1
14 Sep 2024	11	8	24
15 Sep 2024	2	2	1
16 Sep 2024	5	15	13
17 Sep 2024	2	2	2
18 Sep 2024	7	5	11
19 Sep 2024	6	6	8
20 Sep 2024	2	2	2
21 Sep 2024	1	1	1
22 Sep 2024	1	1	1
23 Sep 2024	1	1	2
24 Sep 2024	1	2	1
25 Sep 2024	1	2	1
26 Sep 2024	2	3	1
27 Sep 2024	2	2	4
28 Sep 2024	1	1	1
29 Sep 2024	1	1	2
30 Sep 2024	1	1	1
01 Oct 2024	1	2	1
02 Oct 2024	1	1	1
03 Oct 2024	1	1	1
04 Oct 2024	7	8	20
05 Oct 2024	1	1	1
06 Oct 2024	1	1	1
07 Oct 2024	1	1	1

$m/s^{1.75}$	New Macquarie Lane H	
Daily VDV	Day	Night
29 Aug 2024	0.02 (Z)	0.04 (Z)
30 Aug 2024	0.09 (Z)	0.09 (Z)
31 Aug 2024	0.06 (Z)	0.01 (Z)
01 Sep 2024	0.2 (Z)	0.09 (Z)
02 Sep 2024	0.09 (Z)	0.09 (Z)
03 Sep 2024	0.07 (Z)	0.1 (Z)
04 Sep 2024	0.08 (Z)	0.09 (Z)
05 Sep 2024	5.55 (Y)	0.15 (Z)
06 Sep 2024	0.24 (Z)	0.27 (Z)
07 Sep 2024	0.04 (Z)	0.01 (Z)
08 Sep 2024	0.14 (Z)	0.17 (Z)
09 Sep 2024	0.19 (Z)	0.19 (Z)
10 Sep 2024	0.15 (Z)	0.17 (Z)
11 Sep 2024	0.21 (Z)	0.17 (Z)
12 Sep 2024	0.15 (Z)	0.19 (Z)
13 Sep 2024	0.19 (Z)	0.17 (Z)
14 Sep 2024	0.43 (Z)	0.07 (Z)
15 Sep 2024	0.14 (Z)	0.19 (Z)
16 Sep 2024	0.22 (Z)	0.15 (Z)
17 Sep 2024	0.19 (Z)	0.2 (Z)
18 Sep 2024	0.32 (Z)	0.12 (Z)
19 Sep 2024	0.24 (Z)	0.18 (Z)
20 Sep 2024	0.08 (Z)	0.1 (Z)
21 Sep 2024	0.1 (Z)	0.15 (Z)
22 Sep 2024	0.06 (Z)	0.07 (Z)
23 Sep 2024	0.09 (Z)	0.04 (Z)
24 Sep 2024	0.08 (Z)	0.11 (Z)
25 Sep 2024	0.08 (Z)	0.13 (Z)
26 Sep 2024	0.15 (Z)	0.06 (Z)
27 Sep 2024	0.13 (Z)	0.06 (Z)
28 Sep 2024	0.03 (Z)	0.04 (Z)
29 Sep 2024	0.06 (Z)	0.08 (Z)
30 Sep 2024	0.06 (Z)	0.07 (Z)
01 Oct 2024	0.05 (Z)	0.11 (Z)
02 Oct 2024	0.07 (Z)	0.06 (Z)
03 Oct 2024	0.07 (Z)	0.06 (Z)
04 Oct 2024	0.42 (Z)	0.06 (Z)
05 Oct 2024	0.07 (Z)	0.09 (Z)
06 Oct 2024	0.11 (Z)	0.05 (Z)
07 Oct 2024	0.05 (Z)	0.01 (Z)

mm/s	New Macquarie Lane H		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	2	1	2
09 Oct 2024	2	2	4
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	0	0	0
17 Oct 2024	0	0	0
18 Oct 2024	0	0	0
19 Oct 2024	0	0	1
20 Oct 2024	0	0	0
	--	--	--

$m/s^{1.75}$	New Macquarie Lane H	
Daily VDV	Day	Night
08 Oct 2024	0.12 (Z)	0.04 (Z)
09 Oct 2024	0.14 (Z)	-- (Z)
10 Oct 2024	-- (Z)	-- (Z)
11 Oct 2024	-- (Z)	-- (Z)
12 Oct 2024	-- (Z)	-- (Z)
13 Oct 2024	-- (Z)	-- (Z)
14 Oct 2024	-- (Z)	-- (Z)
15 Oct 2024	-- (Z)	-- (Z)
16 Oct 2024	0.03 (Z)	0.01 (Z)
17 Oct 2024	0.02 (Z)	0.01 (Z)
18 Oct 2024	0.02 (Z)	0.01 (Z)
19 Oct 2024	0.02 (Z)	0.01 (Z)
20 Oct 2024	0.04 (Z)	0.01 (Z)

mm/s	25 Smith Street		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	5	9	5
02 Aug 2024	1	1	2
03 Aug 2024	0	1	1
04 Aug 2024	0	0	1
05 Aug 2024	1	0	1
06 Aug 2024	1	0	1
07 Aug 2024	1	0	2
08 Aug 2024	1	0	1
09 Aug 2024	1	0	1
10 Aug 2024	0	0	1
11 Aug 2024	1	0	1
12 Aug 2024	1	1	1
13 Aug 2024	1	1	2
14 Aug 2024	1	0	2
15 Aug 2024	1	0	1
16 Aug 2024	1	0	1
17 Aug 2024	0	0	1
18 Aug 2024	0	0	1
19 Aug 2024	1	0	1
20 Aug 2024	1	0	1
21 Aug 2024	0	0	2
22 Aug 2024	0	1	2
23 Aug 2024	1	0	2
24 Aug 2024	1	0	1
25 Aug 2024	0	0	1
26 Aug 2024	0	0	2
27 Aug 2024	0	0	1
28 Aug 2024	1	0	2

$m/s^{1.75}$	25 Smith Street	
Daily VDV	Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	-- (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	0.02 (Z)	0.01 (Z)
02 Aug 2024	0.04 (Z)	0.01 (Z)
03 Aug 2024	0.02 (Z)	0.02 (Z)
04 Aug 2024	0.01 (Z)	0.01 (Z)
05 Aug 2024	0.03 (Z)	0.02 (Z)
06 Aug 2024	0.03 (Z)	0.01 (Z)
07 Aug 2024	0.04 (Z)	0.01 (Z)
08 Aug 2024	0.03 (Z)	0.02 (Z)
09 Aug 2024	0.03 (Z)	0.02 (Z)
10 Aug 2024	0.02 (Z)	0.02 (Z)
11 Aug 2024	0.02 (Z)	0.01 (Z)
12 Aug 2024	0.03 (Z)	0.02 (Z)
13 Aug 2024	0.03 (Z)	0.01 (Z)
14 Aug 2024	0.03 (Z)	0.02 (Z)
15 Aug 2024	0.03 (Z)	0.01 (Z)
16 Aug 2024	0.03 (Z)	0.01 (Z)
17 Aug 2024	0.01 (Z)	0.01 (Z)
18 Aug 2024	0.02 (Z)	0.01 (Z)
19 Aug 2024	0.03 (Z)	0.02 (Z)
20 Aug 2024	0.03 (Z)	0.01 (Z)
21 Aug 2024	0.03 (Z)	0.01 (Z)
22 Aug 2024	0.03 (Z)	0.01 (Z)
23 Aug 2024	0.03 (Z)	0.02 (Z)
24 Aug 2024	0.02 (Z)	0.01 (Z)
25 Aug 2024	0.01 (Z)	0.01 (Z)
26 Aug 2024	0.03 (Z)	0.02 (Z)
27 Aug 2024	0.02 (Z)	0.02 (Z)
28 Aug 2024	0.03 (Z)	0.02 (Z)

mm/s	25 Smith Street		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	1	0	1
30 Aug 2024	0	0	1
31 Aug 2024	0	0	1
01 Sep 2024	0	0	1
02 Sep 2024	0	0	1
03 Sep 2024	0	0	1
04 Sep 2024	0	0	1
05 Sep 2024	0	0	0
06 Sep 2024	0	0	1
07 Sep 2024	0	0	0
08 Sep 2024	0	0	0
09 Sep 2024	0	0	1
10 Sep 2024	0	0	1
11 Sep 2024	0	0	1
12 Sep 2024	0	0	1
13 Sep 2024	0	0	1
14 Sep 2024	0	0	1
15 Sep 2024	0	0	0
16 Sep 2024	0	0	1
17 Sep 2024	0	0	1
18 Sep 2024	0	0	1
19 Sep 2024	0	0	0
20 Sep 2024	0	0	1
21 Sep 2024	0	0	0
22 Sep 2024	0	0	0
23 Sep 2024	0	0	1
24 Sep 2024	0	0	1
25 Sep 2024	0	0	1
26 Sep 2024	0	0	0
27 Sep 2024	0	0	1
28 Sep 2024	0	0	0
29 Sep 2024	0	0	1
30 Sep 2024	0	0	1
01 Oct 2024	0	0	1
02 Oct 2024	0	0	1
03 Oct 2024	0	0	1
04 Oct 2024	0	0	1
05 Oct 2024	0	0	0
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$	25 Smith Street	
Daily VDV	Day	Night
29 Aug 2024	0.02 (Z)	0.02 (Z)
30 Aug 2024	0.02 (Z)	0.01 (Z)
31 Aug 2024	0.02 (Z)	0.01 (Z)
01 Sep 2024	0.02 (Z)	0.02 (Z)
02 Sep 2024	0.02 (Z)	-- (Z)
03 Sep 2024	0.02 (Z)	0.01 (Z)
04 Sep 2024	0.02 (Z)	0.01 (Z)
05 Sep 2024	0.02 (Z)	0.01 (Z)
06 Sep 2024	0.02 (Z)	0.01 (Z)
07 Sep 2024	0.01 (Z)	0.01 (Z)
08 Sep 2024	0.01 (Z)	0.01 (Z)
09 Sep 2024	0.02 (Z)	0.01 (Z)
10 Sep 2024	0.02 (Z)	0.01 (Z)
11 Sep 2024	0.02 (Z)	0.01 (Z)
12 Sep 2024	0.02 (Z)	0.01 (Z)
13 Sep 2024	0.02 (Z)	0.01 (Z)
14 Sep 2024	0.01 (Z)	0.01 (Z)
15 Sep 2024	0.01 (Z)	0.01 (Z)
16 Sep 2024	0.02 (Z)	0.01 (Z)
17 Sep 2024	0.02 (Z)	0.01 (Z)
18 Sep 2024	0.02 (Z)	0.01 (Z)
19 Sep 2024	0.02 (Z)	0.01 (Z)
20 Sep 2024	0.02 (Z)	0.01 (Z)
21 Sep 2024	0.01 (Z)	0.01 (Z)
22 Sep 2024	0.01 (Z)	0.01 (Z)
23 Sep 2024	0.02 (Z)	0.01 (Z)
24 Sep 2024	0.02 (Z)	0.01 (Z)
25 Sep 2024	0.02 (Z)	0.01 (Z)
26 Sep 2024	0.02 (Z)	-- (Z)
27 Sep 2024	0.02 (Z)	0.01 (Z)
28 Sep 2024	0.01 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.01 (Z)
30 Sep 2024	0.02 (Z)	0.01 (Z)
01 Oct 2024	0.02 (Z)	0.01 (Z)
02 Oct 2024	0.02 (Z)	0.01 (Z)
03 Oct 2024	0.02 (Z)	0.01 (Z)
04 Oct 2024	0.02 (Z)	0.01 (Z)
05 Oct 2024	0.01 (Z)	0.01 (Z)
06 Oct 2024	0.01 (Z)	0.01 (Z)
07 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	25 Smith Street		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	0	1
09 Oct 2024	0	0	1
10 Oct 2024	0	0	1
11 Oct 2024	0	0	1
12 Oct 2024	0	0	0
13 Oct 2024	0	0	0
14 Oct 2024	0	0	1
15 Oct 2024	0	0	1
16 Oct 2024	0	0	1
17 Oct 2024	0	0	0
18 Oct 2024	0	0	1
19 Oct 2024	0	0	0
20 Oct 2024	0	0	0
	--	--	--

$m/s^{1.75}$	25 Smith Street	
Daily VDV	Day	Night
08 Oct 2024	0.02 (Z)	0.01 (Z)
09 Oct 2024	0.02 (Z)	0.01 (Z)
10 Oct 2024	0.02 (Z)	0.01 (Z)
11 Oct 2024	0.02 (Z)	0.01 (Z)
12 Oct 2024	0.01 (Z)	0.01 (Z)
13 Oct 2024	0.01 (Z)	0.01 (Z)
14 Oct 2024	0.02 (Z)	0.01 (Z)
15 Oct 2024	0.02 (Z)	0.01 (Z)
16 Oct 2024	0.02 (Z)	0.01 (Z)
17 Oct 2024	0.02 (Z)	0.01 (Z)
18 Oct 2024	0.02 (Z)	0.01 (Z)
19 Oct 2024	0.01 (Z)	0.01 (Z)
20 Oct 2024	0.02 (Z)	0.01 (Z)

mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	57	33	24
25 Jul 2024	365	161	250
26 Jul 2024	79	118	108
27 Jul 2024	0	0	1
28 Jul 2024	0	0	0
29 Jul 2024	350	294	366
30 Jul 2024	15	27	84
31 Jul 2024	0	0	0
01 Aug 2024	462	329	740
02 Aug 2024	4	7	1
03 Aug 2024	4	7	1
04 Aug 2024	0	0	0
05 Aug 2024	9	6	2
06 Aug 2024	99	131	110
07 Aug 2024	73	30	22
08 Aug 2024	--	--	--
09 Aug 2024	--	--	--
10 Aug 2024	--	--	--
11 Aug 2024	--	--	--
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

$m/s^{1.75}$	218 Church Street	
Daily VDV	Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	0.65 (Z)	0.01 (Z)
25 Jul 2024	4.82 (Z)	0.02 (Z)
26 Jul 2024	2.52 (Z)	0.01 (Z)
27 Jul 2024	0.03 (Z)	0.01 (Z)
28 Jul 2024	0.01 (Z)	0.01 (Z)
29 Jul 2024	3.14 (Z)	0.01 (Z)
30 Jul 2024	1.94 (Z)	0.01 (Z)
31 Jul 2024	0.01 (Z)	0.01 (Z)
01 Aug 2024	3.53 (Z)	0.01 (Z)
02 Aug 2024	0.07 (Z)	0.01 (Z)
03 Aug 2024	0.04 (Z)	0.01 (Z)
04 Aug 2024	0.01 (Z)	0.01 (Z)
05 Aug 2024	0.05 (Z)	0.01 (Z)
06 Aug 2024	3.92 (Z)	0.25 (X)
07 Aug 2024	0.04 (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	-- (Z)	-- (Z)
10 Aug 2024	-- (Z)	-- (Z)
11 Aug 2024	-- (Z)	-- (Z)
12 Aug 2024	-- (Z)	-- (Z)
13 Aug 2024	-- (Z)	-- (Z)
14 Aug 2024	-- (Z)	-- (Z)
15 Aug 2024	-- (Z)	-- (Z)
16 Aug 2024	-- (Z)	-- (Z)
17 Aug 2024	-- (Z)	-- (Z)
18 Aug 2024	-- (Z)	-- (Z)
19 Aug 2024	-- (Z)	-- (Z)
20 Aug 2024	-- (Z)	-- (Z)
21 Aug 2024	-- (Z)	-- (Z)
22 Aug 2024	-- (Z)	-- (Z)
23 Aug 2024	-- (Z)	-- (Z)
24 Aug 2024	-- (Z)	-- (Z)
25 Aug 2024	-- (Z)	-- (Z)
26 Aug 2024	-- (Z)	-- (Z)
27 Aug 2024	-- (Z)	-- (Z)
28 Aug 2024	-- (Z)	-- (Z)

mm/s Daily Max	218 Church Street X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	--	--	--
14 Sep 2024	--	--	--
15 Sep 2024	--	--	--
16 Sep 2024	--	--	--
17 Sep 2024	--	--	--
18 Sep 2024	--	--	--
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	--	--	--
26 Sep 2024	--	--	--
27 Sep 2024	--	--	--
28 Sep 2024	--	--	--
29 Sep 2024	--	--	--
30 Sep 2024	--	--	--
01 Oct 2024	--	--	--
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

$m/s^{1.75}$ Daily VDV	218 Church Street Day	Night
29 Aug 2024	-- (Z)	-- (Z)
30 Aug 2024	-- (Z)	-- (Z)
31 Aug 2024	-- (Z)	-- (Z)
01 Sep 2024	-- (Z)	-- (Z)
02 Sep 2024	-- (Z)	-- (Z)
03 Sep 2024	-- (Z)	-- (Z)
04 Sep 2024	-- (Z)	-- (Z)
05 Sep 2024	-- (Z)	-- (Z)
06 Sep 2024	-- (Z)	-- (Z)
07 Sep 2024	-- (Z)	-- (Z)
08 Sep 2024	-- (Z)	-- (Z)
09 Sep 2024	-- (Z)	-- (Z)
10 Sep 2024	-- (Z)	-- (Z)
11 Sep 2024	-- (Z)	-- (Z)
12 Sep 2024	-- (Z)	-- (Z)
13 Sep 2024	-- (Z)	-- (Z)
14 Sep 2024	-- (Z)	-- (Z)
15 Sep 2024	-- (Z)	-- (Z)
16 Sep 2024	-- (Z)	-- (Z)
17 Sep 2024	-- (Z)	-- (Z)
18 Sep 2024	-- (Z)	-- (Z)
19 Sep 2024	-- (Z)	-- (Z)
20 Sep 2024	-- (Z)	-- (Z)
21 Sep 2024	-- (Z)	-- (Z)
22 Sep 2024	-- (Z)	-- (Z)
23 Sep 2024	-- (Z)	-- (Z)
24 Sep 2024	-- (Z)	-- (Z)
25 Sep 2024	-- (Z)	-- (Z)
26 Sep 2024	-- (Z)	-- (Z)
27 Sep 2024	-- (Z)	-- (Z)
28 Sep 2024	-- (Z)	-- (Z)
29 Sep 2024	-- (Z)	-- (Z)
30 Sep 2024	-- (Z)	-- (Z)
01 Oct 2024	-- (Z)	-- (Z)
02 Oct 2024	-- (Z)	-- (Z)
03 Oct 2024	-- (Z)	-- (Z)
04 Oct 2024	-- (Z)	-- (Z)
05 Oct 2024	-- (Z)	-- (Z)
06 Oct 2024	-- (Z)	-- (Z)
07 Oct 2024	-- (Z)	-- (Z)

mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	--	--	--
17 Oct 2024	--	--	--
18 Oct 2024	--	--	--
19 Oct 2024	--	--	--
20 Oct 2024	--	--	--
	--	--	--

$m/s^{1.75}$	218 Church Street	
Daily VDV	Day	Night
08 Oct 2024	-- (Z)	-- (Z)
09 Oct 2024	-- (Z)	-- (Z)
10 Oct 2024	-- (Z)	-- (Z)
11 Oct 2024	-- (Z)	-- (Z)
12 Oct 2024	-- (Z)	-- (Z)
13 Oct 2024	-- (Z)	-- (Z)
14 Oct 2024	-- (Z)	-- (Z)
15 Oct 2024	-- (Z)	-- (Z)
16 Oct 2024	-- (Z)	-- (Z)
17 Oct 2024	-- (Z)	-- (Z)
18 Oct 2024	-- (Z)	-- (Z)
19 Oct 2024	-- (Z)	-- (Z)
20 Oct 2024	-- (Z)	-- (Z)

mm/s	75 George St		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	33	22	14
10 Aug 2024	0	0	0
11 Aug 2024	0	0	0
12 Aug 2024	0	0	0
13 Aug 2024	0	0	0
14 Aug 2024	0	0	0
15 Aug 2024	0	0	0
16 Aug 2024	0	0	0
17 Aug 2024	0	0	0
18 Aug 2024	0	0	0
19 Aug 2024	0	0	0
20 Aug 2024	0	0	0
21 Aug 2024	0	0	0
22 Aug 2024	0	0	0
23 Aug 2024	1	1	0
24 Aug 2024	1	0	0
25 Aug 2024	0	0	0
26 Aug 2024	0	0	0
27 Aug 2024	0	0	0
28 Aug 2024	0	0	0

$m/s^{1.75}$	75 George St	
Daily VDV	Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	-- (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	-- (Z)	-- (Z)
02 Aug 2024	-- (Z)	-- (Z)
03 Aug 2024	-- (Z)	-- (Z)
04 Aug 2024	-- (Z)	-- (Z)
05 Aug 2024	-- (Z)	-- (Z)
06 Aug 2024	-- (Z)	-- (Z)
07 Aug 2024	-- (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	0.02 (Z)	0.01 (Z)
10 Aug 2024	0.02 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.01 (Z)
12 Aug 2024	0.02 (Z)	0.01 (Z)
13 Aug 2024	0.02 (Z)	0.01 (Z)
14 Aug 2024	0.02 (Z)	0.01 (Z)
15 Aug 2024	0.02 (Z)	0.01 (Z)
16 Aug 2024	0.02 (Z)	0.01 (Z)
17 Aug 2024	0.02 (Z)	0.01 (Z)
18 Aug 2024	0.02 (Z)	0.01 (Z)
19 Aug 2024	0.02 (Z)	0.01 (Z)
20 Aug 2024	0.02 (Z)	0.01 (Z)
21 Aug 2024	0.02 (Z)	0.01 (Z)
22 Aug 2024	0.02 (Z)	0.01 (Z)
23 Aug 2024	0.02 (Z)	0.01 (Z)
24 Aug 2024	0.02 (Z)	0.01 (Z)
25 Aug 2024	0.01 (Z)	0.01 (Z)
26 Aug 2024	0.02 (Z)	0.01 (Z)
27 Aug 2024	0.02 (Z)	0.01 (Z)
28 Aug 2024	0.02 (Z)	0.01 (Z)

mm/s	75 George St		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	0	0	0
30 Aug 2024	0	0	0
31 Aug 2024	0	0	0
01 Sep 2024	0	0	0
02 Sep 2024	0	0	0
03 Sep 2024	0	0	0
04 Sep 2024	0	0	0
05 Sep 2024	0	0	0
06 Sep 2024	0	0	0
07 Sep 2024	1	1	0
08 Sep 2024	0	0	0
09 Sep 2024	0	0	0
10 Sep 2024	0	0	0
11 Sep 2024	0	0	0
12 Sep 2024	0	0	0
13 Sep 2024	0	0	0
14 Sep 2024	0	0	0
15 Sep 2024	0	0	0
16 Sep 2024	0	0	0
17 Sep 2024	0	0	0
18 Sep 2024	0	0	0
19 Sep 2024	0	0	0
20 Sep 2024	0	0	0
21 Sep 2024	0	0	0
22 Sep 2024	0	0	0
23 Sep 2024	0	0	0
24 Sep 2024	10	11	13
25 Sep 2024	0	0	0
26 Sep 2024	0	0	0
27 Sep 2024	0	0	0
28 Sep 2024	0	0	0
29 Sep 2024	0	0	0
30 Sep 2024	0	0	0
01 Oct 2024	0	0	0
02 Oct 2024	0	0	0
03 Oct 2024	0	0	0
04 Oct 2024	0	0	0
05 Oct 2024	0	0	0
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$	75 George St	
Daily VDV	Day	Night
29 Aug 2024	0.02 (Z)	0.01 (Z)
30 Aug 2024	0.02 (Z)	0.01 (Z)
31 Aug 2024	0.02 (Z)	0.01 (Z)
01 Sep 2024	0.01 (Z)	0.01 (Z)
02 Sep 2024	0.02 (Z)	0.01 (Z)
03 Sep 2024	0.02 (Z)	-- (Z)
04 Sep 2024	0.03 (Z)	0.02 (Z)
05 Sep 2024	0.03 (Z)	0.02 (Z)
06 Sep 2024	0.03 (Z)	0.02 (Z)
07 Sep 2024	0.02 (Z)	0.01 (Z)
08 Sep 2024	0.02 (Z)	0.02 (Z)
09 Sep 2024	0.03 (Z)	0.02 (Z)
10 Sep 2024	0.03 (Z)	0.02 (Z)
11 Sep 2024	0.03 (Z)	0.02 (Z)
12 Sep 2024	0.03 (Z)	0.02 (Z)
13 Sep 2024	0.03 (Z)	0.02 (Z)
14 Sep 2024	0.03 (Z)	0.02 (Z)
15 Sep 2024	0.02 (Z)	0.02 (Z)
16 Sep 2024	0.03 (Z)	0.02 (Z)
17 Sep 2024	0.03 (Z)	0.02 (Z)
18 Sep 2024	0.03 (Z)	0.02 (Z)
19 Sep 2024	0.03 (Z)	0.02 (Z)
20 Sep 2024	0.03 (Z)	0.02 (Z)
21 Sep 2024	0.02 (Z)	0.02 (Z)
22 Sep 2024	0.02 (Z)	0.02 (Z)
23 Sep 2024	0.03 (Z)	0.02 (Z)
24 Sep 2024	0.47 (Z)	0.03 (Z)
25 Sep 2024	0.03 (Z)	0.02 (Z)
26 Sep 2024	0.02 (Z)	0.02 (Z)
27 Sep 2024	0.03 (Z)	0.01 (Z)
28 Sep 2024	0.02 (Z)	0.01 (Z)
29 Sep 2024	0.02 (Z)	0.02 (Z)
30 Sep 2024	0.02 (Z)	0.02 (Z)
01 Oct 2024	0.03 (Z)	0.02 (Z)
02 Oct 2024	0.03 (Z)	0.02 (Z)
03 Oct 2024	0.03 (Z)	0.02 (Z)
04 Oct 2024	0.03 (Z)	0.02 (Z)
05 Oct 2024	0.02 (Z)	0.02 (Z)
06 Oct 2024	0.02 (Z)	0.01 (Z)
07 Oct 2024	0.02 (Z)	0.01 (Z)

mm/s	75 George St		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	0	0
09 Oct 2024	0	0	0
10 Oct 2024	0	0	0
11 Oct 2024	0	0	0
12 Oct 2024	0	0	0
13 Oct 2024	0	0	0
14 Oct 2024	0	0	0
15 Oct 2024	0	0	0
16 Oct 2024	0	0	0
17 Oct 2024	0	0	0
18 Oct 2024	0	0	0
19 Oct 2024	0	0	0
20 Oct 2024	0	0	0
	--	--	--

$m/s^{1.75}$	75 George St	
Daily VDV	Day	Night
08 Oct 2024	0.03 (Z)	0.02 (Z)
09 Oct 2024	0.03 (Z)	0.02 (Z)
10 Oct 2024	0.03 (Z)	0.02 (Z)
11 Oct 2024	0.03 (Z)	0.01 (Z)
12 Oct 2024	0.02 (Z)	0.01 (Z)
13 Oct 2024	0.02 (Z)	0.02 (Z)
14 Oct 2024	0.03 (Z)	0.02 (Z)
15 Oct 2024	0.03 (Z)	0.02 (Z)
16 Oct 2024	0.03 (Z)	0.02 (Z)
17 Oct 2024	0.03 (Z)	0.02 (Z)
18 Oct 2024	0.02 (Z)	0.01 (Z)
19 Oct 2024	0.02 (Z)	0.01 (Z)
20 Oct 2024	0.02 (Z)	0.02 (Z)

mm/s Daily Max	Town/Convict Drain X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	--	--	--
10 Aug 2024	--	--	--
11 Aug 2024	--	--	--
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	0	0	0
24 Aug 2024	3	3	1
25 Aug 2024	0	0	0
26 Aug 2024	1	1	1
27 Aug 2024	1	1	0
28 Aug 2024	1	1	0

mm/s Daily Max	Town/Convict Drain X Peak	Y Peak	Z Peak
29 Aug 2024	1	1	1
30 Aug 2024	1	1	0
31 Aug 2024	0	0	0
01 Sep 2024	0	0	0
02 Sep 2024	1	1	1
03 Sep 2024	0	0	0
04 Sep 2024	0	0	0
05 Sep 2024	0	0	0
06 Sep 2024	0	0	0
07 Sep 2024	1	1	0
08 Sep 2024	1	1	0
09 Sep 2024	0	0	0
10 Sep 2024	0	1	0
11 Sep 2024	0	0	0
12 Sep 2024	0	0	0
13 Sep 2024	0	0	0
14 Sep 2024	0	0	0
15 Sep 2024	0	0	0
16 Sep 2024	1	0	0
17 Sep 2024	0	0	0
18 Sep 2024	0	0	0
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	--	--	--
26 Sep 2024	--	--	--
27 Sep 2024	--	--	--
28 Sep 2024	--	--	--
29 Sep 2024	--	--	--
30 Sep 2024	--	--	--
01 Oct 2024	--	--	--
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

mm/s	Town/Convict Drain		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	--	--	--
17 Oct 2024	--	--	--
18 Oct 2024	--	--	--
19 Oct 2024	--	--	--
20 Oct 2024	--	--	--
	--	--	--

Daily Notes

Date and time	By	Monitoring Point(s)	Note
26 Jul 2024	Hala		rain gauge reading ~ 6mm
27 Jul 2024	Hala		Adjacent project, 197 Church Street were rock hammering at ~ 7:30am
29 Jul 2024	Hala		Rain gauge reading ~9.5mm
05 Aug 2024	Kellie		0.5mm of rainfall noted in rain gauge following weekend
12 Aug 2024	Kellie		Rainfall of 1mm recorded in site gauge
13 Aug 2024	Kellie		Rainfall recorded in rain gauge at 8am = 1.5mm
15 Aug 2024	Hala		Rain gauge reading ~5.5mm
19 Aug 2024	Kellie		Site rainfall for weekend recorded = 1.5mm
29 Aug 2024	Hala		moderate winds between 15 to 25 Km/hr and moderate bush fires warning causing dust to be generated. Site surface has been sprayed and swept throughout the day and misters have been functional down in the box.
26 Sep 2024	Kellie		Site rainfall gauge at 6:30am = 6mm
27 Sep 2024	Kellie		Daily rainfall recorded in on-site gauge at 7:45am = 41mm
30 Sep 2024	Kellie		9.5mm of rainfall over the weekend in gauge @7:41am
03 Oct 2024	Hala		Rain gauge reading from yesterday's rainfall is ~4mm.
11 Oct 2024	Kellie		Rainfall recorded in site gauge @9:42am = 2.5mm
14 Oct 2024	Kellie		Rainfall recorded in site gauge @9:00am = 1mm
15 Oct 2024	Kellie		Overnight rainfall in site gauge @6:40am = 8mm
16 Oct 2024	Hala		rain gauge reading ~3mm.
18 Oct 2024	Kellie		Rainfall recorded in site rain gauge at 3:12pm = 1.5mm

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
LECIYE	George St Shops, 218 Church Street, Town/Convict Drain	Omnidots swarm	03 Jun 2024	03 Jun 2026
FIBISA	240 Church Street Parramatta	Omnidots swarm	20 Oct 2021	20 Oct 2023
GEGAWE	Roxy Theatre	Omnidots swarm	20 Oct 2021	20 Oct 2023
VIB-000182	-	SiteHive Hexanode	14 May 2024	14 May 2026
VIB-000182	New Macquarie Lane Hoarding	SiteHive Hexanode	14 May 2024	14 May 2026
VIB-000174	-	SiteHive Hexanode	21 May 2024	21 May 2026
VIB-000197	25 Smith Street, 75 George St	SiteHive Hexanode	01 Jul 2024	01 Jul 2026
VIB-000206	25 Smith Street	SiteHive Hexanode	04 Jul 2024	04 Jul 2026
VIB-000208	Roxy Theatre	SiteHive Hexanode	04 Jul 2024	04 Jul 2026

Gamuda Laing O'Rourke

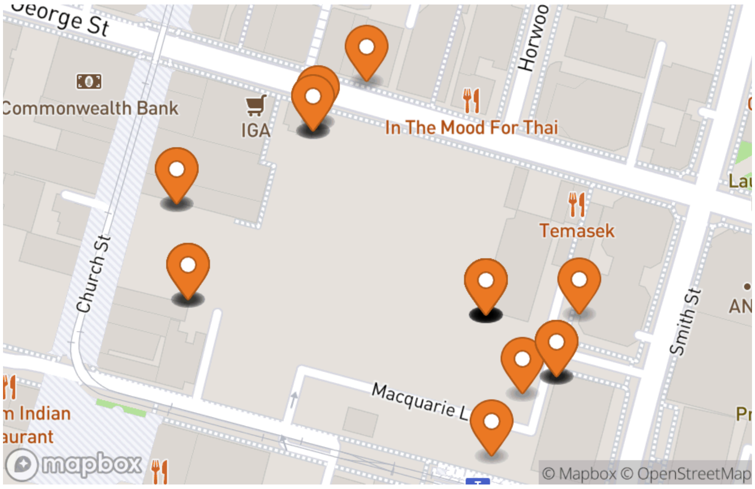
SiteHive

Sydney Metro West WTP Parramatta

Monitoring Devices

Date Range 21 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
LECIYE	220 Church St Parramatta, Town/Convict Drain
FIBISA	240 Church Street Parramatta
GEGAWE	George St Shops, 220 Church St Parramatta, The Shops Heritage Building, 46 George Street
VIB-000182	-
VIB-000182	New Macquarie Lane Hoarding
VIB-000174	-
VIB-000197	75 George St
VIB-000206	25 Smith Street
VIB-000208	Roxy Theatre



Vibration Monitoring Statistics

Roxy Theatre

Value	Unit		Axis
68	mm/s	MAXIMUM	X Peak
180	mm/s	MAXIMUM	Y Peak
35	mm/s	MAXIMUM	Z Peak

Roxy Theatre

Value	Unit		Axis
0.28	$m/s^{1.75}$	MAXIMUM	X VDV
0.97	$m/s^{1.75}$	MAXIMUM	Y VDV
0.76	$m/s^{1.75}$	MAXIMUM	Z VDV

George St Shops

Value	Unit		Axis
1	mm/s	MAXIMUM	X Peak
1	mm/s	MAXIMUM	Y Peak
1	mm/s	MAXIMUM	Z Peak

George St Shops

Value	Unit		Axis
0.03	$m/s^{1.75}$	MAXIMUM	X VDV
0.03	$m/s^{1.75}$	MAXIMUM	Y VDV
0.15	$m/s^{1.75}$	MAXIMUM	Z VDV

240 Church Street Parram...

Value	Unit		Axis
2	mm/s	MAXIMUM	X Peak
6	mm/s	MAXIMUM	Y Peak
4	mm/s	MAXIMUM	Z Peak

240 Church Street Parram...

Value	Unit		Axis
0.01	$m/s^{1.75}$	MAXIMUM	X VDV
0.05	$m/s^{1.75}$	MAXIMUM	Y VDV
0.14	$m/s^{1.75}$	MAXIMUM	Z VDV

New Macquarie Lane Hoa...

Value	Unit		Axis
120	mm/s	MAXIMUM	X Peak
286	mm/s	MAXIMUM	Y Peak
71	mm/s	MAXIMUM	Z Peak

New Macquarie Lane Hoa...

Value	Unit		Axis
0.69	$m/s^{1.75}$	MAXIMUM	X VDV
1.8	$m/s^{1.75}$	MAXIMUM	Y VDV
1.6	$m/s^{1.75}$	MAXIMUM	Z VDV

25 Smith Street

Value	Unit		Axis
0	mm/s	MAXIMUM	X Peak
0	mm/s	MAXIMUM	Y Peak
1	mm/s	MAXIMUM	Z Peak

25 Smith Street

Value	Unit		Axis
--	$m/s^{1.75}$	MAXIMUM	X VDV
--	$m/s^{1.75}$	MAXIMUM	Y VDV
0.02	$m/s^{1.75}$	MAXIMUM	Z VDV

220 Church St Parramatta

Value	Unit		Axis
261	mm/s	MAXIMUM	X Peak
698	mm/s	MAXIMUM	Y Peak
402	mm/s	MAXIMUM	Z Peak

220 Church St Parramatta

Value	Unit		Axis
1.4	$m/s^{1.75}$	MAXIMUM	X VDV
3.78	$m/s^{1.75}$	MAXIMUM	Y VDV
6.06	$m/s^{1.75}$	MAXIMUM	Z VDV

75 George St

Value	Unit		Channel
0	mm/s	MAXIMUM	X Peak
0	mm/s	MAXIMUM	Y Peak
1	mm/s	MAXIMUM	Z Peak

75 George St

Value	Unit		Channel
0.01	$m/s^{1.75}$	MAXIMUM	X VDV
0.01	$m/s^{1.75}$	MAXIMUM	Y VDV
0.04	$m/s^{1.75}$	MAXIMUM	Z VDV

Town/Convict Drain

Value	Unit		Channel
--	mm/s	MAXIMUM	X Peak
--	mm/s	MAXIMUM	Y Peak
--	mm/s	MAXIMUM	Z Peak

The Shops Heritage Buildi...

Value	Unit		Channel
180	mm/s	MAXIMUM	X Peak
413	mm/s	MAXIMUM	Y Peak
161	mm/s	MAXIMUM	Z Peak

The Shops Heritage Buildi...

Value	Unit		Channel
1.16	$m/s^{1.75}$	MAXIMUM	X VDV
2.3	$m/s^{1.75}$	MAXIMUM	Y VDV
3.42	$m/s^{1.75}$	MAXIMUM	Z VDV

46 George Street

Value	Unit		Channel
180	mm/s	MAXIMUM	X Peak
76	mm/s	MAXIMUM	Y Peak
101	mm/s	MAXIMUM	Z Peak

46 George Street

Value	Unit		Channel
0.85	$m/s^{1.75}$	MAXIMUM	X VDV
0.37	$m/s^{1.75}$	MAXIMUM	Y VDV
2.62	$m/s^{1.75}$	MAXIMUM	Z VDV

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	1	1	4
22 Oct 2024	1	1	2
23 Oct 2024	1	1	2
24 Oct 2024	1	1	3
25 Oct 2024	1	1	1
26 Oct 2024	1	0	1
27 Oct 2024	0	0	0
28 Oct 2024	0	0	1
29 Oct 2024	2	2	3
30 Oct 2024	10	4	35
31 Oct 2024	2	2	6
01 Nov 2024	1	1	4
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	1	1	1
06 Nov 2024	68	180	33
07 Nov 2024	0	1	1
08 Nov 2024	1	1	1
09 Nov 2024	1	1	1
10 Nov 2024	0	0	1
11 Nov 2024	0	0	1
12 Nov 2024	1	1	1
13 Nov 2024	2	1	13
14 Nov 2024	1	1	1
15 Nov 2024	1	1	1
16 Nov 2024	1	1	2
17 Nov 2024	0	0	0
18 Nov 2024	1	1	1
19 Nov 2024	1	1	2
20 Nov 2024	1	1	1
21 Nov 2024	1	0	1
22 Nov 2024	0	0	1
23 Nov 2024	1	0	0
24 Nov 2024	0	0	0
25 Nov 2024	1	0	1
26 Nov 2024	1	0	1
27 Nov 2024	1	1	1
28 Nov 2024	1	1	1
29 Nov 2024	2	4	1

$m/s^{1.75}$	Roxy Theatre	
Daily VDV	Day	Night
21 Oct 2024	0.07 (Z)	0.02 (Z)
22 Oct 2024	0.05 (Z)	0.01 (Z)
23 Oct 2024	0.05 (Z)	0.03 (Z)
24 Oct 2024	0.06 (Z)	0.01 (Z)
25 Oct 2024	0.03 (Z)	0.01 (Z)
26 Oct 2024	0.04 (Z)	0.01 (Z)
27 Oct 2024	0.01 (Z)	0.01 (Z)
28 Oct 2024	0.03 (Z)	0.01 (Z)
29 Oct 2024	0.06 (Z)	0.01 (Z)
30 Oct 2024	0.38 (Z)	0.01 (Z)
31 Oct 2024	0.06 (Z)	0.01 (Z)
01 Nov 2024	0.09 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.01 (Z)	0.01 (Z)
05 Nov 2024	0.07 (Z)	0.01 (Z)
06 Nov 2024	0.97 (Y)	-- (Z)
07 Nov 2024	0.06 (Z)	0.01 (Z)
08 Nov 2024	0.08 (Z)	0.01 (Z)
09 Nov 2024	0.06 (Z)	0.01 (Z)
10 Nov 2024	0.02 (Z)	0.01 (Z)
11 Nov 2024	0.04 (Z)	0.01 (Z)
12 Nov 2024	0.05 (Z)	0.01 (Z)
13 Nov 2024	0.11 (Z)	0.01 (Z)
14 Nov 2024	0.05 (Z)	0.01 (Z)
15 Nov 2024	0.06 (Z)	0.01 (Z)
16 Nov 2024	0.04 (Z)	0.01 (Z)
17 Nov 2024	0.01 (Z)	0.01 (Z)
18 Nov 2024	0.05 (Z)	0.01 (Z)
19 Nov 2024	0.06 (Z)	0.01 (Z)
20 Nov 2024	0.05 (Z)	0.01 (Z)
21 Nov 2024	0.03 (Z)	0.01 (Z)
22 Nov 2024	0.03 (Z)	0.01 (Z)
23 Nov 2024	0.02 (Z)	0.01 (Z)
24 Nov 2024	0.01 (Z)	0.01 (Z)
25 Nov 2024	0.04 (Z)	0.01 (Z)
26 Nov 2024	0.04 (Z)	0.01 (Z)
27 Nov 2024	0.05 (Z)	0.01 (Z)
28 Nov 2024	0.05 (Z)	0.01 (Z)
29 Nov 2024	0.04 (Z)	0.01 (Z)

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	1	1
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	0	0	0
04 Dec 2024	0	0	0
05 Dec 2024	0	0	0
06 Dec 2024	0	0	0
07 Dec 2024	0	0	0
08 Dec 2024	0	0	0
09 Dec 2024	0	1	1
10 Dec 2024	0	0	1
11 Dec 2024	1	1	1
12 Dec 2024	0	0	0
13 Dec 2024	0	0	0
14 Dec 2024	0	0	0
15 Dec 2024	0	0	0
16 Dec 2024	0	0	0
17 Dec 2024	0	0	0
18 Dec 2024	1	1	2
19 Dec 2024	0	1	1
20 Dec 2024	0	0	0
21 Dec 2024	0	0	0
22 Dec 2024	0	0	0
23 Dec 2024	0	0	0
24 Dec 2024	0	0	0
25 Dec 2024	0	0	0
26 Dec 2024	0	0	0
27 Dec 2024	0	0	0
28 Dec 2024	0	0	0
29 Dec 2024	0	0	0
30 Dec 2024	0	0	0
31 Dec 2024	0	0	0
01 Jan 2025	0	0	0
02 Jan 2025	0	0	0
03 Jan 2025	0	0	0
04 Jan 2025	0	0	0
05 Jan 2025	0	0	0
06 Jan 2025	30	69	11
07 Jan 2025	--	--	--
08 Jan 2025	0	0	0

$m/s^{1.75}$	Roxy Theatre	
Daily VDV	Day	Night
30 Nov 2024	0.03 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	0.01 (Z)
03 Dec 2024	0.03 (Z)	0.01 (Z)
04 Dec 2024	0.02 (Z)	-- (Z)
05 Dec 2024	0.02 (Z)	0.02 (Z)
06 Dec 2024	0.07 (Z)	0.01 (Z)
07 Dec 2024	0.01 (Z)	0.01 (Z)
08 Dec 2024	0.01 (Z)	0.01 (Z)
09 Dec 2024	0.03 (Z)	0.02 (Z)
10 Dec 2024	0.03 (Z)	0.01 (Z)
11 Dec 2024	0.03 (Z)	0.01 (Z)
12 Dec 2024	0.03 (Z)	0.01 (Z)
13 Dec 2024	0.02 (Z)	0.01 (Z)
14 Dec 2024	0.01 (Z)	0.01 (Z)
15 Dec 2024	0.01 (Z)	0.01 (Z)
16 Dec 2024	0.02 (Z)	0.01 (Z)
17 Dec 2024	0.01 (Z)	0.01 (Z)
18 Dec 2024	0.03 (Z)	0.01 (Z)
19 Dec 2024	0.04 (Z)	0.01 (Z)
20 Dec 2024	0.01 (Z)	0.01 (Z)
21 Dec 2024	0.01 (Z)	0.01 (Z)
22 Dec 2024	0.01 (Z)	0.01 (Z)
23 Dec 2024	0.01 (Z)	0.01 (Z)
24 Dec 2024	0.01 (Z)	0.01 (Z)
25 Dec 2024	0.01 (Z)	0.01 (Z)
26 Dec 2024	0.01 (Z)	0.01 (Z)
27 Dec 2024	0.01 (Z)	0.01 (Z)
28 Dec 2024	0.01 (Z)	0.01 (Z)
29 Dec 2024	0.01 (Z)	0.01 (Z)
30 Dec 2024	0.01 (Z)	0.01 (Z)
31 Dec 2024	0.01 (Z)	0.01 (Z)
01 Jan 2025	0.01 (Z)	0.01 (Z)
02 Jan 2025	0.01 (Z)	0.01 (Z)
03 Jan 2025	0.01 (Z)	0.01 (Z)
04 Jan 2025	0.01 (Z)	0.01 (Z)
05 Jan 2025	0.01 (Z)	0.01 (Z)
06 Jan 2025	0.29 (Y)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	0.02 (Z)	0.01 (Z)

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	0	0	0
10 Jan 2025	0	0	0
11 Jan 2025	0	0	0
12 Jan 2025	0	0	0
13 Jan 2025	0	0	0
14 Jan 2025	0	1	1
15 Jan 2025	2	1	1
16 Jan 2025	0	0	1
17 Jan 2025	0	0	1
18 Jan 2025	0	0	0
19 Jan 2025	0	0	0
	--	--	--

$m/s^{1.75}$	Roxy Theatre	
Daily VDV	Day	Night
09 Jan 2025	0.01 (Z)	0.01 (Z)
10 Jan 2025	0.01 (Z)	0.01 (Z)
11 Jan 2025	0.01 (Z)	0.01 (Z)
12 Jan 2025	0.01 (Z)	0.01 (Z)
13 Jan 2025	0.02 (Z)	0.01 (Z)
14 Jan 2025	0.03 (Z)	0.01 (Z)
15 Jan 2025	0.03 (Z)	0.01 (Z)
16 Jan 2025	0.03 (Z)	0.01 (Z)
17 Jan 2025	0.03 (Z)	0.01 (Z)
18 Jan 2025	0.01 (Z)	0.01 (Z)
19 Jan 2025	0.01 (Z)	0.01 (Z)

mm/s	George St Shops		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	1	1	1
01 Nov 2024	1	1	1
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

$m/s^{1.75}$	George St Shops	
Daily VDV	Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	0.15 (Z)	0.02 (Z)
01 Nov 2024	0.1 (Z)	0.01 (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)
29 Nov 2024	-- (Z)	-- (Z)

mm/s Daily Max	George St Shops X Peak	 Y Peak	 Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$ Daily VDV	George St Shops Day	 Night
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	George St Shops		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	George St Shops	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	1	4	4
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	1	3	4
29 Oct 2024	2	2	4
30 Oct 2024	1	2	3
31 Oct 2024	1	1	1
01 Nov 2024	0	1	1
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	0	1	2
06 Nov 2024	0	1	1
07 Nov 2024	0	1	1
08 Nov 2024	0	1	1
09 Nov 2024	0	1	1
10 Nov 2024	0	1	1
11 Nov 2024	1	1	2
12 Nov 2024	0	1	1
13 Nov 2024	2	2	1
14 Nov 2024	0	1	0
15 Nov 2024	0	1	1
16 Nov 2024	1	2	3
17 Nov 2024	1	6	3
18 Nov 2024	0	1	1
19 Nov 2024	0	1	1
20 Nov 2024	0	1	1
21 Nov 2024	0	0	0
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

$m/s^{1.75}$	240 Church Street Parr	
Daily VDV	Day	Night
21 Oct 2024	0.14 (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	0.13 (Z)	0.01 (Z)
29 Oct 2024	0.12 (Z)	0.01 (Z)
30 Oct 2024	0.13 (Z)	0.01 (Z)
31 Oct 2024	0.1 (Z)	0.01 (Z)
01 Nov 2024	0.08 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.01 (Z)	0.01 (Z)
05 Nov 2024	0.1 (Z)	0.01 (Z)
06 Nov 2024	0.13 (Z)	0.01 (Z)
07 Nov 2024	0.07 (Z)	0.01 (Z)
08 Nov 2024	0.06 (Z)	0.01 (Z)
09 Nov 2024	0.05 (Z)	0.01 (Z)
10 Nov 2024	0.03 (Z)	0.01 (Z)
11 Nov 2024	0.1 (Z)	0.01 (Z)
12 Nov 2024	0.05 (Z)	0.01 (Z)
13 Nov 2024	0.06 (Z)	0.01 (Z)
14 Nov 2024	0.03 (Z)	0.01 (Z)
15 Nov 2024	0.06 (Z)	0.01 (Z)
16 Nov 2024	0.11 (Z)	0.01 (Z)
17 Nov 2024	0.09 (Z)	0.02 (Z)
18 Nov 2024	0.06 (Z)	0.01 (Z)
19 Nov 2024	0.06 (Z)	0.01 (Z)
20 Nov 2024	0.08 (Z)	0.01 (Z)
21 Nov 2024	0.02 (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)
29 Nov 2024	-- (Z)	-- (Z)

mm/s Daily Max	240 Church Street Parr X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$ Daily VDV	240 Church Street Parr Day	Night
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	240 Church Street Parr	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	New Macquarie Lane H		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	0	0	0
22 Oct 2024	0	1	1
23 Oct 2024	0	0	0
24 Oct 2024	0	0	0
25 Oct 2024	0	0	0
26 Oct 2024	1	1	0
27 Oct 2024	0	0	0
28 Oct 2024	0	0	0
29 Oct 2024	4	2	3
30 Oct 2024	0	0	0
31 Oct 2024	0	0	0
01 Nov 2024	0	0	0
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	0	0	0
06 Nov 2024	1	2	2
07 Nov 2024	1	3	3
08 Nov 2024	0	0	0
09 Nov 2024	2	1	1
10 Nov 2024	1	0	1
11 Nov 2024	2	1	0
12 Nov 2024	1	1	1
13 Nov 2024	0	0	0
14 Nov 2024	1	0	0
15 Nov 2024	1	1	1
16 Nov 2024	0	0	0
17 Nov 2024	0	0	0
18 Nov 2024	0	0	0
19 Nov 2024	0	0	0
20 Nov 2024	1	0	0
21 Nov 2024	0	0	0
22 Nov 2024	0	0	0
23 Nov 2024	0	0	0
24 Nov 2024	0	0	0
25 Nov 2024	0	0	0
26 Nov 2024	0	0	0
27 Nov 2024	0	0	0
28 Nov 2024	0	0	0
29 Nov 2024	1	0	0

$m/s^{1.75}$	New Macquarie Lane H	
Daily VDV	Day	Night
21 Oct 2024	0.05 (Z)	0.03 (Z)
22 Oct 2024	0.02 (Z)	0.02 (Z)
23 Oct 2024	0.02 (Z)	0.03 (Z)
24 Oct 2024	0.05 (Z)	0.04 (Z)
25 Oct 2024	0.02 (Z)	0.02 (Z)
26 Oct 2024	0.02 (Z)	0.01 (Z)
27 Oct 2024	0.02 (Z)	0.01 (Z)
28 Oct 2024	0.02 (Z)	0.02 (Z)
29 Oct 2024	0.02 (Z)	0.01 (Z)
30 Oct 2024	0.02 (Z)	0.01 (Z)
31 Oct 2024	0.02 (Z)	0.01 (Z)
01 Nov 2024	0.02 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.01 (Z)	0.01 (Z)
05 Nov 2024	0.02 (Z)	0.01 (Z)
06 Nov 2024	0.04 (Z)	0.01 (Z)
07 Nov 2024	0.04 (Z)	-- (Z)
08 Nov 2024	0.03 (Z)	0.01 (Z)
09 Nov 2024	0.04 (Z)	0.01 (Z)
10 Nov 2024	0.02 (Z)	0.01 (Z)
11 Nov 2024	0.02 (Z)	0.01 (Z)
12 Nov 2024	0.04 (Z)	0.01 (Z)
13 Nov 2024	0.02 (Z)	0.01 (Z)
14 Nov 2024	0.02 (Z)	0.01 (Z)
15 Nov 2024	0.04 (Z)	0.01 (Z)
16 Nov 2024	0.04 (Z)	0.01 (Z)
17 Nov 2024	0.02 (Z)	0.01 (Z)
18 Nov 2024	0.02 (Z)	0.02 (Z)
19 Nov 2024	0.02 (Z)	0.01 (Z)
20 Nov 2024	0.02 (Z)	0.01 (Z)
21 Nov 2024	0.02 (Z)	0.01 (Z)
22 Nov 2024	0.02 (Z)	0.01 (Z)
23 Nov 2024	0.02 (Z)	0.01 (Z)
24 Nov 2024	0.02 (Z)	0.01 (Z)
25 Nov 2024	0.02 (Z)	0.01 (Z)
26 Nov 2024	0.02 (Z)	0.01 (Z)
27 Nov 2024	0.02 (Z)	0.01 (Z)
28 Nov 2024	0.02 (Z)	0.01 (Z)
29 Nov 2024	0.01 (Z)	0.01 (Z)

mm/s	New Macquarie Lane I		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	0	0	0
04 Dec 2024	0	0	0
05 Dec 2024	0	0	0
06 Dec 2024	0	0	0
07 Dec 2024	0	0	0
08 Dec 2024	0	0	0
09 Dec 2024	0	0	0
10 Dec 2024	0	0	0
11 Dec 2024	0	0	1
12 Dec 2024	0	0	0
13 Dec 2024	0	0	0
14 Dec 2024	0	0	0
15 Dec 2024	0	0	0
16 Dec 2024	120	286	71
17 Dec 2024	0	0	0
18 Dec 2024	0	0	0
19 Dec 2024	0	0	0
20 Dec 2024	0	0	0
21 Dec 2024	0	0	0
22 Dec 2024	0	0	0
23 Dec 2024	0	0	0
24 Dec 2024	0	0	0
25 Dec 2024	0	0	0
26 Dec 2024	0	0	0
27 Dec 2024	0	0	0
28 Dec 2024	0	1	0
29 Dec 2024	0	0	0
30 Dec 2024	0	0	0
31 Dec 2024	0	1	0
01 Jan 2025	0	0	0
02 Jan 2025	0	1	0
03 Jan 2025	0	1	0
04 Jan 2025	0	0	0
05 Jan 2025	1	1	1
06 Jan 2025	34	46	43
07 Jan 2025	0	0	0
08 Jan 2025	0	0	0

$m/s^{1.75}$	New Macquarie Lane I	
Daily VDV	Day	Night
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	0.01 (Z)
03 Dec 2024	0.01 (Z)	0.01 (Z)
04 Dec 2024	0.01 (Z)	0.01 (Z)
05 Dec 2024	0.01 (Z)	-- (Z)
06 Dec 2024	0.02 (Z)	0.01 (Z)
07 Dec 2024	0.01 (Z)	0.01 (Z)
08 Dec 2024	0.01 (Z)	0.01 (Z)
09 Dec 2024	0.01 (Z)	0.01 (Z)
10 Dec 2024	0.02 (Z)	0.01 (Z)
11 Dec 2024	0.02 (Z)	0.01 (Z)
12 Dec 2024	0.01 (Z)	0.01 (Z)
13 Dec 2024	0.01 (Z)	0.01 (Z)
14 Dec 2024	0.01 (Z)	0.01 (Z)
15 Dec 2024	0.01 (Z)	0.01 (Z)
16 Dec 2024	1.8 (Y)	0.01 (Z)
17 Dec 2024	0.01 (Z)	0.01 (Z)
18 Dec 2024	0.01 (Z)	0.01 (Z)
19 Dec 2024	0.01 (Z)	0.01 (Z)
20 Dec 2024	0.01 (Z)	0.01 (Z)
21 Dec 2024	0.01 (Z)	0.01 (Z)
22 Dec 2024	0.01 (Z)	0.01 (Z)
23 Dec 2024	0.01 (Z)	0.01 (Z)
24 Dec 2024	0.01 (Z)	0.01 (Z)
25 Dec 2024	0.01 (Z)	0.01 (Z)
26 Dec 2024	0.01 (Z)	0.01 (Z)
27 Dec 2024	0.01 (Z)	0.01 (Z)
28 Dec 2024	0.01 (Z)	0.01 (Z)
29 Dec 2024	0.01 (Z)	0.01 (Z)
30 Dec 2024	0.01 (Z)	0.01 (Z)
31 Dec 2024	0.01 (Z)	0.01 (Z)
01 Jan 2025	0.01 (Z)	0.01 (Z)
02 Jan 2025	0.02 (Z)	0.01 (Z)
03 Jan 2025	0.01 (Z)	0.01 (Z)
04 Jan 2025	0.01 (Z)	0.01 (Z)
05 Jan 2025	0.01 (Z)	0.01 (Z)
06 Jan 2025	0.76 (Z)	0.01 (Z)
07 Jan 2025	0.01 (Z)	0.01 (Z)
08 Jan 2025	0.01 (Z)	-- (Z)

mm/s	New Macquarie Lane H		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	New Macquarie Lane H	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	25 Smith Street		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	0	0	1
22 Oct 2024	0	0	1
23 Oct 2024	0	0	1
24 Oct 2024	0	0	1
25 Oct 2024	0	0	1
26 Oct 2024	0	0	0
27 Oct 2024	0	0	0
28 Oct 2024	0	0	1
29 Oct 2024	0	0	1
30 Oct 2024	0	0	1
31 Oct 2024	0	0	1
01 Nov 2024	0	0	1
02 Nov 2024	0	0	1
03 Nov 2024	0	0	0
04 Nov 2024	0	0	1
05 Nov 2024	0	0	1
06 Nov 2024	0	0	1
07 Nov 2024	0	0	1
08 Nov 2024	0	0	1
09 Nov 2024	0	0	0
10 Nov 2024	0	0	0
11 Nov 2024	0	0	1
12 Nov 2024	0	0	1
13 Nov 2024	0	0	1
14 Nov 2024	0	0	1
15 Nov 2024	0	0	1
16 Nov 2024	0	0	1
17 Nov 2024	0	0	0
18 Nov 2024	0	0	0
19 Nov 2024	0	0	1
20 Nov 2024	0	0	1
21 Nov 2024	0	0	1
22 Nov 2024	0	0	1
23 Nov 2024	0	0	1
24 Nov 2024	0	0	0
25 Nov 2024	0	0	1
26 Nov 2024	0	0	1
27 Nov 2024	0	0	1
28 Nov 2024	0	0	1
29 Nov 2024	0	0	1

$m/s^{1.75}$	25 Smith Street	
Daily VDV	Day	Night
21 Oct 2024	0.02 (Z)	0.02 (Z)
22 Oct 2024	0.02 (Z)	0.01 (Z)
23 Oct 2024	0.02 (Z)	-- (Z)
24 Oct 2024	0.02 (Z)	0.02 (Z)
25 Oct 2024	0.02 (Z)	0.01 (Z)
26 Oct 2024	0.01 (Z)	0.01 (Z)
27 Oct 2024	0.01 (Z)	0.01 (Z)
28 Oct 2024	0.02 (Z)	0.01 (Z)
29 Oct 2024	0.02 (Z)	0.01 (Z)
30 Oct 2024	0.02 (Z)	0.01 (Z)
31 Oct 2024	0.02 (Z)	0.01 (Z)
01 Nov 2024	0.02 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.02 (Z)	0.01 (Z)
05 Nov 2024	0.02 (Z)	0.01 (Z)
06 Nov 2024	0.02 (Z)	0.01 (Z)
07 Nov 2024	0.02 (Z)	0.01 (Z)
08 Nov 2024	0.02 (Z)	0.01 (Z)
09 Nov 2024	0.01 (Z)	0.01 (Z)
10 Nov 2024	0.01 (Z)	0.01 (Z)
11 Nov 2024	0.02 (Z)	0.01 (Z)
12 Nov 2024	0.02 (Z)	0.01 (Z)
13 Nov 2024	0.02 (Z)	0.01 (Z)
14 Nov 2024	0.02 (Z)	-- (Z)
15 Nov 2024	0.02 (Z)	0.01 (Z)
16 Nov 2024	0.01 (Z)	0.01 (Z)
17 Nov 2024	0.01 (Z)	0.01 (Z)
18 Nov 2024	0.02 (Z)	0.01 (Z)
19 Nov 2024	0.02 (Z)	0.01 (Z)
20 Nov 2024	0.02 (Z)	0.01 (Z)
21 Nov 2024	0.02 (Z)	0.01 (Z)
22 Nov 2024	0.02 (Z)	0.01 (Z)
23 Nov 2024	0.02 (Z)	0.01 (Z)
24 Nov 2024	0.01 (Z)	0.01 (Z)
25 Nov 2024	0.02 (Z)	0.01 (Z)
26 Nov 2024	0.02 (Z)	0.01 (Z)
27 Nov 2024	0.02 (Z)	0.01 (Z)
28 Nov 2024	0.02 (Z)	0.01 (Z)
29 Nov 2024	0.02 (Z)	0.01 (Z)

mm/s	25 Smith Street		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	1
03 Dec 2024	0	0	1
04 Dec 2024	0	0	1
05 Dec 2024	0	0	1
06 Dec 2024	0	0	1
07 Dec 2024	0	0	0
08 Dec 2024	0	0	0
09 Dec 2024	0	0	1
10 Dec 2024	0	0	1
11 Dec 2024	0	0	1
12 Dec 2024	0	0	1
13 Dec 2024	0	0	1
14 Dec 2024	0	0	0
15 Dec 2024	0	0	0
16 Dec 2024	0	0	1
17 Dec 2024	0	0	0
18 Dec 2024	0	0	1
19 Dec 2024	0	0	1
20 Dec 2024	0	0	0
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	25 Smith Street	
Daily VDV	Day	Night
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.02 (Z)	0.01 (Z)
03 Dec 2024	0.02 (Z)	0.01 (Z)
04 Dec 2024	0.02 (Z)	0.01 (Z)
05 Dec 2024	0.02 (Z)	0.01 (Z)
06 Dec 2024	0.02 (Z)	0.01 (Z)
07 Dec 2024	0.01 (Z)	0.01 (Z)
08 Dec 2024	0.01 (Z)	0.01 (Z)
09 Dec 2024	0.02 (Z)	0.01 (Z)
10 Dec 2024	0.02 (Z)	0.01 (Z)
11 Dec 2024	0.02 (Z)	0.01 (Z)
12 Dec 2024	0.02 (Z)	0.01 (Z)
13 Dec 2024	0.02 (Z)	0.01 (Z)
14 Dec 2024	0.01 (Z)	0.01 (Z)
15 Dec 2024	0.01 (Z)	0.01 (Z)
16 Dec 2024	0.02 (Z)	0.01 (Z)
17 Dec 2024	0.01 (Z)	0.01 (Z)
18 Dec 2024	0.02 (Z)	0.01 (Z)
19 Dec 2024	0.02 (Z)	0.01 (Z)
20 Dec 2024	0.01 (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	25 Smith Street		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	25 Smith Street	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	1	1	0
26 Oct 2024	1	1	0
27 Oct 2024	1	1	0
28 Oct 2024	1	2	0
29 Oct 2024	1	2	0
30 Oct 2024	0	1	0
31 Oct 2024	0	1	0
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	1	1	0
09 Nov 2024	0	1	0
10 Nov 2024	0	0	0
11 Nov 2024	0	1	1
12 Nov 2024	0	1	0
13 Nov 2024	0	1	0
14 Nov 2024	8	12	1
15 Nov 2024	1	3	1
16 Nov 2024	123	164	357
17 Nov 2024	0	0	1
18 Nov 2024	0	0	0
19 Nov 2024	0	0	0
20 Nov 2024	31	64	115
21 Nov 2024	261	698	402
22 Nov 2024	0	1	1
23 Nov 2024	0	0	0
24 Nov 2024	0	0	0
25 Nov 2024	0	0	0
26 Nov 2024	0	0	0
27 Nov 2024	6	1	3
28 Nov 2024	1	0	0
29 Nov 2024	0	0	0

$m/s^{1.75}$	220 Church St Parramc	
Daily VDV	Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	0.01 (Z)	0.01 (Z)
26 Oct 2024	0.01 (Z)	0.01 (Z)
27 Oct 2024	0.01 (Z)	0.01 (Z)
28 Oct 2024	0.01 (Z)	0.01 (Z)
29 Oct 2024	0.01 (Z)	0.01 (Z)
30 Oct 2024	0.01 (Z)	0.01 (Z)
31 Oct 2024	0.01 (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	0.02 (X)	0.01 (Z)
09 Nov 2024	0.01 (Z)	0.01 (Z)
10 Nov 2024	0.01 (Z)	0.01 (Z)
11 Nov 2024	0.04 (Z)	0.01 (Z)
12 Nov 2024	0.01 (Z)	0.01 (Z)
13 Nov 2024	0.01 (Z)	0.01 (Z)
14 Nov 2024	0.04 (Y)	0.04 (Z)
15 Nov 2024	0.03 (Z)	0.01 (Z)
16 Nov 2024	6.06 (Z)	0.01 (Z)
17 Nov 2024	0.04 (Z)	0.01 (Z)
18 Nov 2024	0.01 (Z)	0.01 (Z)
19 Nov 2024	0.01 (Z)	0.01 (Z)
20 Nov 2024	2.4 (Z)	0.01 (Z)
21 Nov 2024	5.65 (Z)	0.01 (Z)
22 Nov 2024	0.02 (Z)	0.01 (Z)
23 Nov 2024	0.01 (Z)	0.01 (Z)
24 Nov 2024	0.01 (Z)	0.01 (Z)
25 Nov 2024	0.01 (Z)	0.01 (Z)
26 Nov 2024	0.01 (Z)	0.01 (Z)
27 Nov 2024	0.09 (Z)	0.01 (Z)
28 Nov 2024	0.01 (Z)	0.01 (Z)
29 Nov 2024	0.01 (Z)	0.01 (Z)

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	89	277	208
01 Dec 2024	0	0	1
02 Dec 2024	0	0	0
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	220 Church St Parramc	
Daily VDV	Day	Night
30 Nov 2024	4.76 (Z)	0.01 (Z)
01 Dec 2024	0.02 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	220 Church St Parramc	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	75 George St		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	0	0	0
22 Oct 2024	0	0	0
23 Oct 2024	0	0	0
24 Oct 2024	0	0	0
25 Oct 2024	0	0	0
26 Oct 2024	0	0	0
27 Oct 2024	0	0	0
28 Oct 2024	0	0	0
29 Oct 2024	0	0	0
30 Oct 2024	0	0	0
31 Oct 2024	0	0	0
01 Nov 2024	0	0	0
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	1
05 Nov 2024	0	0	0
06 Nov 2024	0	0	0
07 Nov 2024	0	0	0
08 Nov 2024	0	0	0
09 Nov 2024	0	0	0
10 Nov 2024	0	0	0
11 Nov 2024	0	0	0
12 Nov 2024	0	0	0
13 Nov 2024	0	0	0
14 Nov 2024	0	0	0
15 Nov 2024	0	0	0
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	0	0	1
20 Nov 2024	0	0	1
21 Nov 2024	0	0	1
22 Nov 2024	0	0	1
23 Nov 2024	0	0	1
24 Nov 2024	0	0	1
25 Nov 2024	0	0	1
26 Nov 2024	0	0	0
27 Nov 2024	0	0	0
28 Nov 2024	0	0	0
29 Nov 2024	--	--	--

$m/s^{1.75}$	75 George St	
Daily VDV	Day	Night
21 Oct 2024	0.04 (Z)	0.02 (Z)
22 Oct 2024	0.03 (Z)	0.02 (Z)
23 Oct 2024	0.03 (Z)	0.03 (Z)
24 Oct 2024	0.02 (Z)	-- (Z)
25 Oct 2024	0.02 (Z)	0.02 (Z)
26 Oct 2024	0.02 (Z)	0.02 (Z)
27 Oct 2024	0.02 (Z)	0.02 (Z)
28 Oct 2024	0.03 (Z)	0.02 (Z)
29 Oct 2024	0.03 (Z)	0.02 (Z)
30 Oct 2024	0.03 (Z)	0.02 (Z)
31 Oct 2024	0.03 (Z)	0.02 (Z)
01 Nov 2024	0.03 (Z)	0.01 (Z)
02 Nov 2024	0.02 (Z)	0.01 (Z)
03 Nov 2024	0.02 (Z)	0.01 (Z)
04 Nov 2024	0.03 (Z)	0.02 (Z)
05 Nov 2024	0.03 (Z)	0.02 (Z)
06 Nov 2024	0.03 (Z)	0.01 (Z)
07 Nov 2024	0.03 (Z)	0.01 (Z)
08 Nov 2024	0.03 (Z)	0.01 (Z)
09 Nov 2024	0.02 (Z)	0.01 (Z)
10 Nov 2024	0.02 (Z)	0.02 (Z)
11 Nov 2024	0.03 (Z)	0.02 (Z)
12 Nov 2024	0.03 (Z)	0.02 (Z)
13 Nov 2024	0.03 (Z)	0.02 (Z)
14 Nov 2024	0.03 (Z)	0.02 (Z)
15 Nov 2024	0.02 (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	0.02 (Z)	0.02 (Z)
20 Nov 2024	0.02 (Z)	0.02 (Z)
21 Nov 2024	0.03 (Z)	0.02 (Z)
22 Nov 2024	0.03 (Z)	0.01 (Z)
23 Nov 2024	0.02 (Z)	0.01 (Z)
24 Nov 2024	0.02 (Z)	0.01 (Z)
25 Nov 2024	0.03 (Z)	0.01 (Z)
26 Nov 2024	0.03 (Z)	0.01 (Z)
27 Nov 2024	0.03 (Z)	0.02 (Z)
28 Nov 2024	0.03 (Z)	0.01 (Z)
29 Nov 2024	-- (Z)	-- (Z)

mm/s	75 George St		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	0	0	0
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	0	0	0
17 Dec 2024	--	--	--
18 Dec 2024	0	0	0
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	75 George St	
Daily VDV	Day	Night
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	0.01 (Z)
13 Dec 2024	0.02 (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	0.02 (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	0.02 (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	75 George St		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	75 George St	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	Town/Convict Drain		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

mm/s	Town/Convict Drain		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

mm/s	Town/Convict Drain		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

mm/s Daily Max	The Shops Heritage Bu X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	12	11	2
06 Nov 2024	180	76	101
07 Nov 2024	33	38	14
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	2	3	1
23 Nov 2024	5	3	4
24 Nov 2024	0	0	0
25 Nov 2024	1	1	1
26 Nov 2024	1	2	1
27 Nov 2024	2	2	1
28 Nov 2024	2	2	1
29 Nov 2024	6	3	5

$m/s^{1.75}$ Daily VDV	The Shops Heritage Bu Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	0.48 (Z)	0.01 (Z)
06 Nov 2024	2.62 (Z)	0.01 (Z)
07 Nov 2024	0.39 (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	0.1 (Z)	0.02 (Z)
23 Nov 2024	0.07 (Z)	0.01 (Z)
24 Nov 2024	0.02 (Z)	0.02 (Z)
25 Nov 2024	0.11 (Z)	0.02 (Z)
26 Nov 2024	0.13 (Z)	0.02 (Z)
27 Nov 2024	0.13 (Z)	0.02 (Z)
28 Nov 2024	0.11 (Z)	0.02 (Z)
29 Nov 2024	0.12 (Z)	0.02 (Z)

mm/s	The Shops Heritage Bu		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	167	413	161
02 Dec 2024	0	0	0
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	The Shops Heritage Bu	
Daily VDV	Day	Night
30 Nov 2024	0.02 (Z)	0.01 (Z)
01 Dec 2024	3.42 (Z)	0.02 (Z)
02 Dec 2024	0.01 (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	The Shops Heritage Bu		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	The Shops Heritage Bu	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	46 George Street		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	12	11	2
06 Nov 2024	180	76	101
07 Nov 2024	33	38	14
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

$m/s^{1.75}$	46 George Street	
Daily VDV	Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	0.48 (Z)	0.01 (Z)
06 Nov 2024	2.62 (Z)	0.01 (Z)
07 Nov 2024	0.39 (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)
29 Nov 2024	-- (Z)	-- (Z)

mm/s	46 George Street		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	46 George Street	
Daily VDV	Day	Night
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	46 George Street		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	46 George Street	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

Daily Notes

Date and time	By	Monitoring Point(s)	Note
21 Oct 2024	Kellie		Rainfall recorded in rain gauge over the weekend period = 4.5mm
25 Oct 2024	Kellie		Rainfall recorded in site gauge @8:30am = 3mm
01 Nov 2024	Kellie		Daily rainfall recorded at 7:38am = 2.5mm
04 Nov 2024	Kellie		No works on-site - RDO
08 Nov 2024	Kellie		Rainfall in site gauge from overnight falls = 7.5mm
18 Nov 2024	Kellie		Rainfall recorded in site gauge at 7:35am = 21.5mm
28 Nov 2024	Kellie		Site rainfall recorded in gauge at 9:20am = 5mm
29 Nov 2024	Hala		rain gauge reading ~2mm
03 Dec 2024	Hala		rain gauge reading is ~ 14.5mm over the weekend and Monday (RDO)
09 Dec 2024	Hala		rainfall over the weekend ~15.5mm.
18 Dec 2024	Hala		rain gauge reading is ~5mm
06 Jan 2025	Hala		rain gauge reading after the Christmas shutdown is ~ 1mm.
07 Jan 2025	Hala		rain gauge reading is ~ 13mm.
09 Jan 2025	Hala		rain gauge reading ~ 26.5mm.
13 Jan 2025	Hala		rain gauge reading over Friday and the weekend is ~ 25.5mm.
16 Jan 2025	Hala		rain gauge reading is ~ 25mm

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
LECIYE	220 Church St Parramatta, Town/Convict Drain	Omnidots swarm	03 Jun 2024	03 Jun 2026
FIBISA	240 Church Street Parramatta	Omnidots swarm	20 Oct 2021	20 Oct 2023
GEGAWE	George St Shops, 220 Church St Parramatta, The Shops Heritage Building, 46 George Street	Omnidots swarm	20 Oct 2021	20 Oct 2023
VIB-000182	-	SiteHive Hexanode	14 May 2024	14 May 2026
VIB-000182	New Macquarie Lane Hoarding	SiteHive Hexanode	14 May 2024	14 May 2026
VIB-000174	-	SiteHive Hexanode	21 May 2024	21 May 2026
VIB-000197	75 George St	SiteHive Hexanode	01 Jul 2024	01 Jul 2026
VIB-000206	25 Smith Street	SiteHive Hexanode	04 Jul 2024	04 Jul 2026
VIB-000208	Roxy Theatre	SiteHive Hexanode	04 Jul 2024	04 Jul 2026

Gamuda Laing O'Rourke

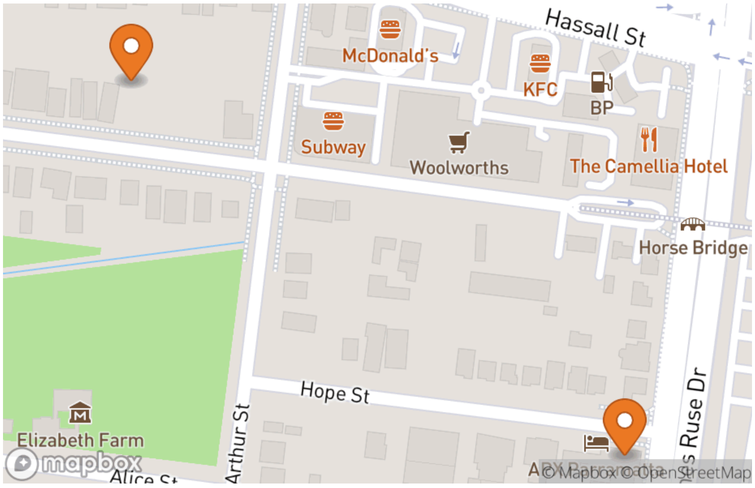
Sydney Metro West WTP Rosehill

Unattended Vibration Monitoring 20Oct24_19Jan25 Rosehill

Monitoring Devices

Date Range 20 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
VIB-000159	APX Hotel, 14 Oak Street, Parramatta



Vibration Monitoring Statistics

APX Hotel

Value	Statistic
121 mm/s	MAXIMUM X Peak
84 mm/s	MAXIMUM Y Peak
49 mm/s	MAXIMUM Z Peak

APX Hotel

Value	Statistic
0.55 $m/s^{1.75}$	MAXIMUM X VDV
0.38 $m/s^{1.75}$	MAXIMUM Y VDV
0.87 $m/s^{1.75}$	MAXIMUM Z VDV

14 Oak Street, Parramatta

Value	Statistic
0 mm/s	MAXIMUM X Peak
1 mm/s	MAXIMUM Y Peak
1 mm/s	MAXIMUM Z Peak

14 Oak Street, Parramatta

Value	Statistic
0.01 $m/s^{1.75}$	MAXIMUM X VDV
0.01 $m/s^{1.75}$	MAXIMUM Y VDV
0.14 $m/s^{1.75}$	MAXIMUM Z VDV

mm/s	APX Hotel		
Daily Max	X Peak	Y Peak	Z Peak
20 Oct 2024	--	--	--
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	0	0	0
26 Nov 2024	24	13	3
27 Nov 2024	0	0	0
28 Nov 2024	0	0	0

$m/s^{1.75}$	APX Hotel	
Daily VDV	Day	Night
20 Oct 2024	-- (Z)	-- (Z)
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	0.01 (Z)	0.01 (Z)
26 Nov 2024	0.09 (X)	0.01 (Z)
27 Nov 2024	0.01 (Z)	0.01 (Z)
28 Nov 2024	0.02 (Z)	0.04 (Z)

mm/s	APX Hotel		
Daily Max	X Peak	Y Peak	Z Peak
29 Nov 2024	0	0	0
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	25	41	1
04 Dec 2024	0	0	0
05 Dec 2024	0	0	0
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	121	84	49
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--

$m/s^{1.75}$	APX Hotel	
Daily VDV	Day	Night
29 Nov 2024	0.06 (Z)	0.03 (Z)
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	0.01 (Z)
03 Dec 2024	0.05 (X)	0.01 (Z)
04 Dec 2024	0.04 (Z)	0.04 (Z)
05 Dec 2024	0.03 (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	0.87 (Z)
16 Dec 2024	0.06 (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)

mm/s	APX Hotel		
Daily Max	X Peak	Y Peak	Z Peak
08 Jan 2025	--	--	--
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
20 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	APX Hotel	
Daily VDV	Day	Night
08 Jan 2025	-- (Z)	-- (Z)
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)
20 Jan 2025	-- (Z)	-- (Z)

mm/s	14 Oak Street, Parramatta		
Daily Max	X Peak	Y Peak	Z Peak
20 Oct 2024	--	--	--
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--

$m/s^{1.75}$	14 Oak Street, Parramatta	
Daily VDV	Day	Night
20 Oct 2024	-- (Z)	-- (Z)
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)

mm/s	14 Oak Street, Parramc		
Daily Max	X Peak	Y Peak	Z Peak
29 Nov 2024	--	--	--
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	0	1	1
17 Dec 2024	0	0	1
18 Dec 2024	0	0	0
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--

$m/s^{1.75}$	14 Oak Street, Parramc	
Daily VDV	Day	Night
29 Nov 2024	-- (Z)	-- (Z)
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	0.14 (Z)	0.01 (Z)
17 Dec 2024	0.01 (Z)	0.01 (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)

mm/s	14 Oak Street, Parramc		
Daily Max	X Peak	Y Peak	Z Peak
08 Jan 2025	--	--	--
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
20 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	14 Oak Street, Parramc	
Daily VDV	Day	Night
08 Jan 2025	-- (Z)	-- (Z)
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)
20 Jan 2025	-- (Z)	-- (Z)

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
VIB-000159	APX Hotel, 14 Oak Street, Parramatta	SiteHive Hexanode	18 Oct 2024	18 Oct 2026

Device Details
Device Serial Monitoring Points Model Calibration Date Calibration Due
VIB-000159 APX Hotel, 14 Oak Street, Parramatta SiteHive Hexanode 18 Oct 2024 18 Oct 2026

Gamuda Laing O'Rourke

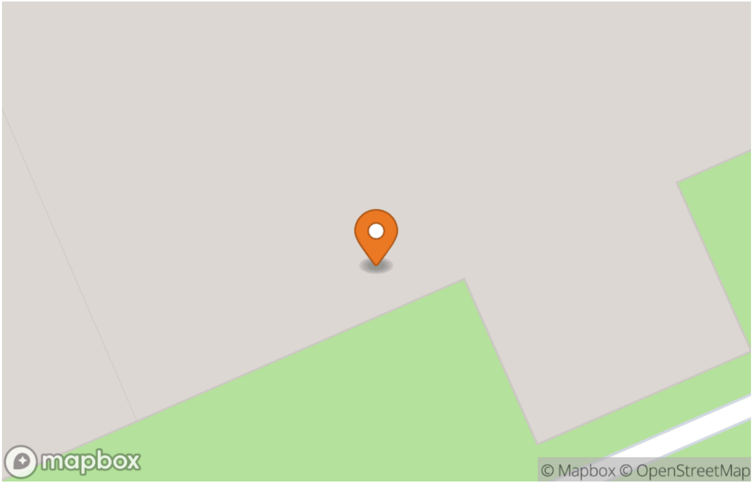
Sydney Metro West WTP Olympic Park

Unattended Vibration Monitoring 21Oct24_19Jan25 Sydney Olympic Park

Monitoring Devices

Date Range 21 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
VIB-000124	1 Showground Rd - Royal Agriculture Society



Vibration Monitoring Statistics

1 Showground Rd - Royal ...

24 mm/s	MAXIMUM	X Peak
29 mm/s	MAXIMUM	Y Peak
19 mm/s	MAXIMUM	Z Peak

1 Showground Rd - Royal ...

-- $m/s^{1.75}$	MAXIMUM	X VDV
-- $m/s^{1.75}$	MAXIMUM	Y VDV
0.01 $m/s^{1.75}$	MAXIMUM	Z VDV

mm/s	1 Showground Rd - Roy		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	0	0	0
01 Nov 2024	0	0	0
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	24	29	19
12 Nov 2024	0	0	0
13 Nov 2024	0	0	0
14 Nov 2024	0	0	0
15 Nov 2024	0	0	0
16 Nov 2024	0	0	0
17 Nov 2024	0	0	0
18 Nov 2024	0	0	0
19 Nov 2024	0	0	0
20 Nov 2024	0	0	0
21 Nov 2024	0	0	0
22 Nov 2024	0	0	0
23 Nov 2024	0	0	0
24 Nov 2024	0	0	0
25 Nov 2024	0	0	0
26 Nov 2024	0	0	0
27 Nov 2024	0	0	0
28 Nov 2024	0	0	0
29 Nov 2024	0	0	0

$m/s^{1.75}$	1 Showground Rd - Roy	
Daily VDV	Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	0.01 (Z)	0.01 (Z)
12 Nov 2024	0.01 (Z)	0.01 (Z)
13 Nov 2024	0.01 (Z)	0.01 (Z)
14 Nov 2024	0.01 (Z)	0.01 (Z)
15 Nov 2024	0.01 (Z)	0.01 (Z)
16 Nov 2024	0.01 (Z)	0.01 (Z)
17 Nov 2024	0.01 (Z)	0.01 (Z)
18 Nov 2024	0.01 (Z)	0.01 (Z)
19 Nov 2024	0.01 (Z)	0.01 (Z)
20 Nov 2024	0.01 (Z)	0.01 (Z)
21 Nov 2024	0.01 (Z)	0.01 (Z)
22 Nov 2024	0.01 (Z)	0.01 (Z)
23 Nov 2024	0.01 (Z)	0.01 (Z)
24 Nov 2024	0.01 (Z)	0.01 (Z)
25 Nov 2024	0.01 (Z)	0.01 (Z)
26 Nov 2024	0.01 (Z)	0.01 (Z)
27 Nov 2024	0.01 (Z)	0.01 (Z)
28 Nov 2024	0.01 (Z)	0.01 (Z)
29 Nov 2024	0.01 (Z)	0.01 (Z)

mm/s	1 Showground Rd - Roy		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	1 Showground Rd - Roy	
Daily VDV	Day	Night
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	1 Showground Rd - Roy		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
20 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	1 Showground Rd - Roy	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)
20 Jan 2025	-- (Z)	-- (Z)

Daily Notes

Date and time	By	Monitoring Point(s)	Note
04 Nov 2024	Tam		VIB-000007 not working after connecting to mains; requires replacement. To be arranged with SiteHive this week
11 Dec 2024	Tam		TBM shutdown over the weekend due to RDO. Recommenced 4/12 for final few rings underneath APX Hotel.

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
VIB-000124	1 Showground Rd - Royal Agriculture Society	SiteHive Hexanode	05 Mar 2024	05 Mar 2026

Gamuda Laing O'Rourke

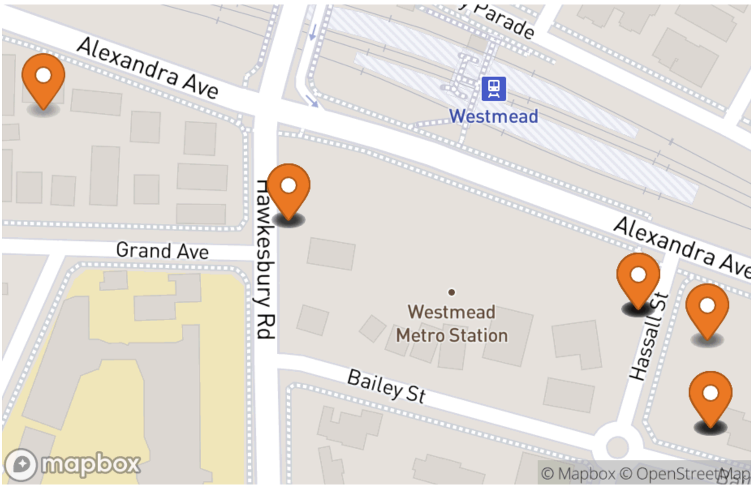
Sydney Metro West WTP Westmead

Unattended Vibration Monitoring 20Jul24_20Oct24 Westmead

Monitoring Devices

Date Range 20 Jul 2024 - 20 Oct 2024

Device Serial	Monitoring Points
FIBISA	-
JISAYI	-
JISAYI	-
QAVULI	-
NUWACA	-
VIB-000006	-
VIB-000021	-
VIB-000024	32A Alexandra Ave
VIB-000010	Hassall Street
VIB-000030	10 - 12 Hassall St
VIB-000072	13 - 17 Bailey St
C22	Hawksbury Avenue



Vibration Monitoring Statistics

Hassall Street

369 mm/s	MAXIMUM	X Peak
385 mm/s	MAXIMUM	Y Peak
372 mm/s	MAXIMUM	Z Peak

Hassall Street

1.52 $m/s^{1.75}$	MAXIMUM	X VDV
1.55 $m/s^{1.75}$	MAXIMUM	Y VDV
3.43 $m/s^{1.75}$	MAXIMUM	Z VDV

Hawksbury Avenue

-- mm/s	MAXIMUM	X Peak
-- mm/s	MAXIMUM	Y Peak
-- mm/s	MAXIMUM	Z Peak

Hawksbury Avenue

-- $m/s^{1.75}$	MAXIMUM	X VDV
-- $m/s^{1.75}$	MAXIMUM	Y VDV
-- $m/s^{1.75}$	MAXIMUM	Z VDV

13 - 17 Bailey St

346 mm/s	MAXIMUM	X Peak
647 mm/s	MAXIMUM	Y Peak
589 mm/s	MAXIMUM	Z Peak

13 - 17 Bailey St

1.44 $m/s^{1.75}$	MAXIMUM	X VDV
1.85 $m/s^{1.75}$	MAXIMUM	Y VDV
3.86 $m/s^{1.75}$	MAXIMUM	Z VDV

10 - 12 Hassall St

3 mm/s	MAXIMUM	X Peak
4 mm/s	MAXIMUM	Y Peak
6 mm/s	MAXIMUM	Z Peak

10 - 12 Hassall St

0.03 $m/s^{1.75}$	MAXIMUM	X VDV
0.05 $m/s^{1.75}$	MAXIMUM	Y VDV
0.07 $m/s^{1.75}$	MAXIMUM	Z VDV

32A Alexandra Ave

2 mm/s	MAXIMUM	X Peak
6 mm/s	MAXIMUM	Y Peak
2 mm/s	MAXIMUM	Z Peak

32A Alexandra Ave

0.01 $m/s^{1.75}$	MAXIMUM	X VDV
0.01 $m/s^{1.75}$	MAXIMUM	Y VDV
0.04 $m/s^{1.75}$	MAXIMUM	Z VDV

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	0	0	0
21 Jul 2024	0	0	0
22 Jul 2024	1	0	1
23 Jul 2024	0	0	0
24 Jul 2024	1	1	1
25 Jul 2024	0	0	0
26 Jul 2024	369	385	372
27 Jul 2024	1	1	1
28 Jul 2024	1	0	0
29 Jul 2024	6	23	17
30 Jul 2024	1	2	2
31 Jul 2024	4	8	6
01 Aug 2024	0	0	0
02 Aug 2024	0	0	0
03 Aug 2024	0	0	0
04 Aug 2024	1	0	1
05 Aug 2024	0	0	0
06 Aug 2024	2	1	3
07 Aug 2024	0	0	0
08 Aug 2024	0	0	0
09 Aug 2024	0	0	0
10 Aug 2024	0	0	0
11 Aug 2024	0	0	0
12 Aug 2024	0	0	0
13 Aug 2024	0	0	0
14 Aug 2024	0	0	0
15 Aug 2024	0	0	0
16 Aug 2024	0	0	0
17 Aug 2024	0	0	0
18 Aug 2024	0	0	0
19 Aug 2024	0	0	0
20 Aug 2024	0	0	1
21 Aug 2024	1	0	1
22 Aug 2024	1	0	0
23 Aug 2024	1	0	1
24 Aug 2024	0	0	0
25 Aug 2024	0	0	1
26 Aug 2024	0	0	1
27 Aug 2024	0	0	1
28 Aug 2024	0	0	1

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
20 Jul 2024	0.06 (Z)	0.01 (Z)
21 Jul 2024	0.01 (Z)	0.01 (Z)
22 Jul 2024	0.03 (Z)	0.01 (Z)
23 Jul 2024	0.05 (Z)	0.01 (Z)
24 Jul 2024	0.04 (Z)	0.02 (Z)
25 Jul 2024	0.05 (Z)	0.01 (Z)
26 Jul 2024	3.43 (Z)	0.01 (Z)
27 Jul 2024	0.02 (Z)	0.01 (Z)
28 Jul 2024	0.01 (Z)	0.01 (Z)
29 Jul 2024	0.43 (Z)	0.02 (Z)
30 Jul 2024	0.04 (Z)	0.02 (Z)
31 Jul 2024	0.15 (Z)	0.01 (Z)
01 Aug 2024	0.02 (Z)	0.01 (Z)
02 Aug 2024	0.02 (Z)	0.01 (Z)
03 Aug 2024	0.02 (Z)	0.01 (Z)
04 Aug 2024	0.02 (Z)	0.01 (Z)
05 Aug 2024	0.02 (Z)	0.01 (Z)
06 Aug 2024	0.06 (Z)	0.01 (Z)
07 Aug 2024	0.01 (Z)	0.01 (Z)
08 Aug 2024	0.02 (Z)	0.01 (Z)
09 Aug 2024	0.02 (Z)	0.01 (Z)
10 Aug 2024	0.01 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.01 (Z)
12 Aug 2024	0.02 (Z)	0.01 (Z)
13 Aug 2024	0.06 (Z)	0.01 (Z)
14 Aug 2024	0.01 (Z)	0.01 (Z)
15 Aug 2024	0.02 (Z)	0.01 (Z)
16 Aug 2024	0.02 (Z)	0.01 (Z)
17 Aug 2024	0.01 (Z)	0.01 (Z)
18 Aug 2024	0.01 (Z)	0.01 (Z)
19 Aug 2024	0.01 (Z)	0.01 (Z)
20 Aug 2024	0.02 (Z)	0.01 (Z)
21 Aug 2024	0.02 (Z)	0.01 (Z)
22 Aug 2024	0.02 (Z)	0.01 (Z)
23 Aug 2024	0.02 (Z)	0.01 (Z)
24 Aug 2024	0.02 (Z)	0.01 (Z)
25 Aug 2024	0.01 (Z)	0.01 (Z)
26 Aug 2024	0.02 (Z)	0.01 (Z)
27 Aug 2024	0.02 (Z)	0.01 (Z)
28 Aug 2024	0.02 (Z)	0.01 (Z)

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	1	0	1
30 Aug 2024	1	1	1
31 Aug 2024	0	0	0
01 Sep 2024	0	0	0
02 Sep 2024	1	3	2
03 Sep 2024	0	0	0
04 Sep 2024	0	0	0
05 Sep 2024	0	0	1
06 Sep 2024	0	0	0
07 Sep 2024	0	0	0
08 Sep 2024	0	0	1
09 Sep 2024	0	0	0
10 Sep 2024	0	0	0
11 Sep 2024	0	1	1
12 Sep 2024	0	0	0
13 Sep 2024	0	0	0
14 Sep 2024	0	0	0
15 Sep 2024	0	0	1
16 Sep 2024	1	1	1
17 Sep 2024	1	1	1
18 Sep 2024	1	1	1
19 Sep 2024	0	0	0
20 Sep 2024	1	1	1
21 Sep 2024	0	0	1
22 Sep 2024	0	1	0
23 Sep 2024	0	0	0
24 Sep 2024	0	0	1
25 Sep 2024	0	0	0
26 Sep 2024	0	0	0
27 Sep 2024	0	0	0
28 Sep 2024	0	0	0
29 Sep 2024	0	0	0
30 Sep 2024	0	0	0
01 Oct 2024	0	0	0
02 Oct 2024	0	0	0
03 Oct 2024	0	0	0
04 Oct 2024	0	0	0
05 Oct 2024	0	0	0
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
29 Aug 2024	0.02 (Z)	0.01 (Z)
30 Aug 2024	0.04 (Z)	0.01 (Z)
31 Aug 2024	0.01 (Z)	0.01 (Z)
01 Sep 2024	0.01 (Z)	0.01 (Z)
02 Sep 2024	0.03 (Z)	0.01 (Z)
03 Sep 2024	0.02 (Z)	0.01 (Z)
04 Sep 2024	0.01 (Z)	0.01 (Z)
05 Sep 2024	0.02 (Z)	0.01 (Z)
06 Sep 2024	0.01 (Z)	0.01 (Z)
07 Sep 2024	0.01 (Z)	0.01 (Z)
08 Sep 2024	0.01 (Z)	0.01 (Z)
09 Sep 2024	0.01 (Z)	0.01 (Z)
10 Sep 2024	0.02 (Z)	0.01 (Z)
11 Sep 2024	0.02 (Z)	0.01 (Z)
12 Sep 2024	0.02 (Z)	0.01 (Z)
13 Sep 2024	0.02 (Z)	0.01 (Z)
14 Sep 2024	0.01 (Z)	0.01 (Z)
15 Sep 2024	0.02 (Z)	0.01 (Z)
16 Sep 2024	0.02 (Z)	0.01 (Z)
17 Sep 2024	0.03 (Z)	0.01 (Z)
18 Sep 2024	0.03 (Z)	0.01 (Z)
19 Sep 2024	0.02 (Z)	0.01 (Z)
20 Sep 2024	0.03 (Z)	0.01 (Z)
21 Sep 2024	0.02 (Z)	0.01 (Z)
22 Sep 2024	0.01 (Z)	0.01 (Z)
23 Sep 2024	0.02 (Z)	0.01 (Z)
24 Sep 2024	0.02 (Z)	0.01 (Z)
25 Sep 2024	0.02 (Z)	0.01 (Z)
26 Sep 2024	0.01 (Z)	0.01 (Z)
27 Sep 2024	0.01 (Z)	0.01 (Z)
28 Sep 2024	0.01 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.01 (Z)
30 Sep 2024	0.01 (Z)	0.01 (Z)
01 Oct 2024	0.01 (Z)	0.01 (Z)
02 Oct 2024	0.01 (Z)	0.01 (Z)
03 Oct 2024	0.01 (Z)	0.01 (Z)
04 Oct 2024	0.01 (Z)	0.01 (Z)
05 Oct 2024	0.01 (Z)	0.01 (Z)
06 Oct 2024	0.01 (Z)	0.01 (Z)
07 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	0	0
09 Oct 2024	0	0	0
10 Oct 2024	0	0	0
11 Oct 2024	0	0	0
12 Oct 2024	0	0	0
13 Oct 2024	0	0	0
14 Oct 2024	1	1	2
15 Oct 2024	0	0	1
16 Oct 2024	0	0	0
17 Oct 2024	1	0	0
18 Oct 2024	0	0	0
19 Oct 2024	0	0	0
20 Oct 2024	0	0	0
	--	--	--

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
08 Oct 2024	0.01 (Z)	0.01 (Z)
09 Oct 2024	0.01 (Z)	0.01 (Z)
10 Oct 2024	0.01 (Z)	0.01 (Z)
11 Oct 2024	0.01 (Z)	0.01 (Z)
12 Oct 2024	0.01 (Z)	0.01 (Z)
13 Oct 2024	0.01 (Z)	0.02 (Z)
14 Oct 2024	0.03 (Z)	0.01 (Z)
15 Oct 2024	0.02 (Z)	0.01 (Z)
16 Oct 2024	0.01 (Z)	0.01 (Z)
17 Oct 2024	0.02 (Z)	0.01 (Z)
18 Oct 2024	0.01 (Z)	0.01 (Z)
19 Oct 2024	0.01 (Z)	0.01 (Z)
20 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	Hawksbury Avenue		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	--	--	--
21 Jul 2024	--	--	--
22 Jul 2024	--	--	--
23 Jul 2024	--	--	--
24 Jul 2024	--	--	--
25 Jul 2024	--	--	--
26 Jul 2024	--	--	--
27 Jul 2024	--	--	--
28 Jul 2024	--	--	--
29 Jul 2024	--	--	--
30 Jul 2024	--	--	--
31 Jul 2024	--	--	--
01 Aug 2024	--	--	--
02 Aug 2024	--	--	--
03 Aug 2024	--	--	--
04 Aug 2024	--	--	--
05 Aug 2024	--	--	--
06 Aug 2024	--	--	--
07 Aug 2024	--	--	--
08 Aug 2024	--	--	--
09 Aug 2024	--	--	--
10 Aug 2024	--	--	--
11 Aug 2024	--	--	--
12 Aug 2024	--	--	--
13 Aug 2024	--	--	--
14 Aug 2024	--	--	--
15 Aug 2024	--	--	--
16 Aug 2024	--	--	--
17 Aug 2024	--	--	--
18 Aug 2024	--	--	--
19 Aug 2024	--	--	--
20 Aug 2024	--	--	--
21 Aug 2024	--	--	--
22 Aug 2024	--	--	--
23 Aug 2024	--	--	--
24 Aug 2024	--	--	--
25 Aug 2024	--	--	--
26 Aug 2024	--	--	--
27 Aug 2024	--	--	--
28 Aug 2024	--	--	--

$m/s^{1.75}$	Hawksbury Avenue	
Daily VDV	Day	Night
20 Jul 2024	-- (Z)	-- (Z)
21 Jul 2024	-- (Z)	-- (Z)
22 Jul 2024	-- (Z)	-- (Z)
23 Jul 2024	-- (Z)	-- (Z)
24 Jul 2024	-- (Z)	-- (Z)
25 Jul 2024	-- (Z)	-- (Z)
26 Jul 2024	-- (Z)	-- (Z)
27 Jul 2024	-- (Z)	-- (Z)
28 Jul 2024	-- (Z)	-- (Z)
29 Jul 2024	-- (Z)	-- (Z)
30 Jul 2024	-- (Z)	-- (Z)
31 Jul 2024	-- (Z)	-- (Z)
01 Aug 2024	-- (Z)	-- (Z)
02 Aug 2024	-- (Z)	-- (Z)
03 Aug 2024	-- (Z)	-- (Z)
04 Aug 2024	-- (Z)	-- (Z)
05 Aug 2024	-- (Z)	-- (Z)
06 Aug 2024	-- (Z)	-- (Z)
07 Aug 2024	-- (Z)	-- (Z)
08 Aug 2024	-- (Z)	-- (Z)
09 Aug 2024	-- (Z)	-- (Z)
10 Aug 2024	-- (Z)	-- (Z)
11 Aug 2024	-- (Z)	-- (Z)
12 Aug 2024	-- (Z)	-- (Z)
13 Aug 2024	-- (Z)	-- (Z)
14 Aug 2024	-- (Z)	-- (Z)
15 Aug 2024	-- (Z)	-- (Z)
16 Aug 2024	-- (Z)	-- (Z)
17 Aug 2024	-- (Z)	-- (Z)
18 Aug 2024	-- (Z)	-- (Z)
19 Aug 2024	-- (Z)	-- (Z)
20 Aug 2024	-- (Z)	-- (Z)
21 Aug 2024	-- (Z)	-- (Z)
22 Aug 2024	-- (Z)	-- (Z)
23 Aug 2024	-- (Z)	-- (Z)
24 Aug 2024	-- (Z)	-- (Z)
25 Aug 2024	-- (Z)	-- (Z)
26 Aug 2024	-- (Z)	-- (Z)
27 Aug 2024	-- (Z)	-- (Z)
28 Aug 2024	-- (Z)	-- (Z)

mm/s	Hawksbury Avenue		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	--	--	--
30 Aug 2024	--	--	--
31 Aug 2024	--	--	--
01 Sep 2024	--	--	--
02 Sep 2024	--	--	--
03 Sep 2024	--	--	--
04 Sep 2024	--	--	--
05 Sep 2024	--	--	--
06 Sep 2024	--	--	--
07 Sep 2024	--	--	--
08 Sep 2024	--	--	--
09 Sep 2024	--	--	--
10 Sep 2024	--	--	--
11 Sep 2024	--	--	--
12 Sep 2024	--	--	--
13 Sep 2024	--	--	--
14 Sep 2024	--	--	--
15 Sep 2024	--	--	--
16 Sep 2024	--	--	--
17 Sep 2024	--	--	--
18 Sep 2024	--	--	--
19 Sep 2024	--	--	--
20 Sep 2024	--	--	--
21 Sep 2024	--	--	--
22 Sep 2024	--	--	--
23 Sep 2024	--	--	--
24 Sep 2024	--	--	--
25 Sep 2024	--	--	--
26 Sep 2024	--	--	--
27 Sep 2024	--	--	--
28 Sep 2024	--	--	--
29 Sep 2024	--	--	--
30 Sep 2024	--	--	--
01 Oct 2024	--	--	--
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

$m/s^{1.75}$	Hawksbury Avenue	
Daily VDV	Day	Night
29 Aug 2024	-- (Z)	-- (Z)
30 Aug 2024	-- (Z)	-- (Z)
31 Aug 2024	-- (Z)	-- (Z)
01 Sep 2024	-- (Z)	-- (Z)
02 Sep 2024	-- (Z)	-- (Z)
03 Sep 2024	-- (Z)	-- (Z)
04 Sep 2024	-- (Z)	-- (Z)
05 Sep 2024	-- (Z)	-- (Z)
06 Sep 2024	-- (Z)	-- (Z)
07 Sep 2024	-- (Z)	-- (Z)
08 Sep 2024	-- (Z)	-- (Z)
09 Sep 2024	-- (Z)	-- (Z)
10 Sep 2024	-- (Z)	-- (Z)
11 Sep 2024	-- (Z)	-- (Z)
12 Sep 2024	-- (Z)	-- (Z)
13 Sep 2024	-- (Z)	-- (Z)
14 Sep 2024	-- (Z)	-- (Z)
15 Sep 2024	-- (Z)	-- (Z)
16 Sep 2024	-- (Z)	-- (Z)
17 Sep 2024	-- (Z)	-- (Z)
18 Sep 2024	-- (Z)	-- (Z)
19 Sep 2024	-- (Z)	-- (Z)
20 Sep 2024	-- (Z)	-- (Z)
21 Sep 2024	-- (Z)	-- (Z)
22 Sep 2024	-- (Z)	-- (Z)
23 Sep 2024	-- (Z)	-- (Z)
24 Sep 2024	-- (Z)	-- (Z)
25 Sep 2024	-- (Z)	-- (Z)
26 Sep 2024	-- (Z)	-- (Z)
27 Sep 2024	-- (Z)	-- (Z)
28 Sep 2024	-- (Z)	-- (Z)
29 Sep 2024	-- (Z)	-- (Z)
30 Sep 2024	-- (Z)	-- (Z)
01 Oct 2024	-- (Z)	-- (Z)
02 Oct 2024	-- (Z)	-- (Z)
03 Oct 2024	-- (Z)	-- (Z)
04 Oct 2024	-- (Z)	-- (Z)
05 Oct 2024	-- (Z)	-- (Z)
06 Oct 2024	-- (Z)	-- (Z)
07 Oct 2024	-- (Z)	-- (Z)

mm/s	Hawksbury Avenue		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	--	--	--
17 Oct 2024	--	--	--
18 Oct 2024	--	--	--
19 Oct 2024	--	--	--
20 Oct 2024	--	--	--
	--	--	--

$m/s^{1.75}$	Hawksbury Avenue	
Daily VDV	Day	Night
08 Oct 2024	-- (Z)	-- (Z)
09 Oct 2024	-- (Z)	-- (Z)
10 Oct 2024	-- (Z)	-- (Z)
11 Oct 2024	-- (Z)	-- (Z)
12 Oct 2024	-- (Z)	-- (Z)
13 Oct 2024	-- (Z)	-- (Z)
14 Oct 2024	-- (Z)	-- (Z)
15 Oct 2024	-- (Z)	-- (Z)
16 Oct 2024	-- (Z)	-- (Z)
17 Oct 2024	-- (Z)	-- (Z)
18 Oct 2024	-- (Z)	-- (Z)
19 Oct 2024	-- (Z)	-- (Z)
20 Oct 2024	-- (Z)	-- (Z)

mm/s	13 - 17 Bailey St		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	0	1	0
21 Jul 2024	37	33	23
22 Jul 2024	1	0	0
23 Jul 2024	1	1	0
24 Jul 2024	8	9	2
25 Jul 2024	1	1	0
26 Jul 2024	1	1	1
27 Jul 2024	172	647	589
28 Jul 2024	87	343	182
29 Jul 2024	8	80	29
30 Jul 2024	7	18	32
31 Jul 2024	2	7	13
01 Aug 2024	10	8	3
02 Aug 2024	11	6	8
03 Aug 2024	10	3	7
04 Aug 2024	243	347	105
05 Aug 2024	1	2	1
06 Aug 2024	32	35	19
07 Aug 2024	9	9	5
08 Aug 2024	340	227	98
09 Aug 2024	189	147	75
10 Aug 2024	1	4	2
11 Aug 2024	0	0	0
12 Aug 2024	13	18	10
13 Aug 2024	0	0	0
14 Aug 2024	2	4	3
15 Aug 2024	12	3	3
16 Aug 2024	0	0	0
17 Aug 2024	0	0	0
18 Aug 2024	0	0	0
19 Aug 2024	0	0	0
20 Aug 2024	1	0	0
21 Aug 2024	1	1	0
22 Aug 2024	0	0	0
23 Aug 2024	1	0	0
24 Aug 2024	0	0	0
25 Aug 2024	1	1	0
26 Aug 2024	0	0	0
27 Aug 2024	0	0	0
28 Aug 2024	1	1	0

$m/s^{1.75}$	13 - 17 Bailey St	
Daily VDV	Day	Night
20 Jul 2024	0.02 (Z)	0.01 (Z)
21 Jul 2024	0.42 (Z)	0.01 (Z)
22 Jul 2024	0.01 (Z)	0.01 (Z)
23 Jul 2024	0.02 (Z)	0.01 (Z)
24 Jul 2024	0.04 (Y)	0.01 (Z)
25 Jul 2024	0.02 (Z)	0.01 (Z)
26 Jul 2024	0.01 (Z)	0.01 (Z)
27 Jul 2024	3.86 (Z)	0.01 (Z)
28 Jul 2024	2.18 (Z)	0.01 (Z)
29 Jul 2024	0.96 (Z)	0.01 (Z)
30 Jul 2024	0.76 (Z)	0.01 (Z)
31 Jul 2024	0.19 (Z)	0.01 (Z)
01 Aug 2024	0.04 (Z)	0.01 (Z)
02 Aug 2024	0.14 (Z)	0.01 (Z)
03 Aug 2024	0.13 (Z)	0.01 (Z)
04 Aug 2024	1.94 (Z)	0.01 (Z)
05 Aug 2024	0.01 (Z)	0.01 (Z)
06 Aug 2024	0.32 (Z)	0.01 (Z)
07 Aug 2024	0.05 (Z)	0.01 (Z)
08 Aug 2024	1.85 (Z)	0.01 (Z)
09 Aug 2024	0.8 (Z)	0.01 (Z)
10 Aug 2024	0.01 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.01 (Z)
12 Aug 2024	0.15 (Z)	0.01 (Z)
13 Aug 2024	0.01 (Z)	0.01 (Z)
14 Aug 2024	0.06 (Z)	0.01 (Z)
15 Aug 2024	0.04 (Z)	0.01 (Z)
16 Aug 2024	0.01 (Z)	0.01 (Z)
17 Aug 2024	0.01 (Z)	0.01 (Z)
18 Aug 2024	0.01 (Z)	0.01 (Z)
19 Aug 2024	0.01 (Z)	0.01 (Z)
20 Aug 2024	0.01 (Z)	0.01 (Z)
21 Aug 2024	0.01 (Z)	0.01 (Z)
22 Aug 2024	0.01 (Z)	0.01 (Z)
23 Aug 2024	0.01 (Z)	0.01 (Z)
24 Aug 2024	0.01 (Z)	0.01 (Z)
25 Aug 2024	0.01 (Z)	0.01 (Z)
26 Aug 2024	0.01 (Z)	0.01 (Z)
27 Aug 2024	0.01 (Z)	0.01 (Z)
28 Aug 2024	0.01 (Z)	0.01 (Z)

mm/s	13 - 17 Bailey St		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	0	0	0
30 Aug 2024	0	0	0
31 Aug 2024	2	1	1
01 Sep 2024	1	0	0
02 Sep 2024	0	0	0
03 Sep 2024	0	0	0
04 Sep 2024	5	3	1
05 Sep 2024	0	0	0
06 Sep 2024	0	0	0
07 Sep 2024	93	47	51
08 Sep 2024	85	87	51
09 Sep 2024	0	0	0
10 Sep 2024	0	0	0
11 Sep 2024	17	15	25
12 Sep 2024	0	0	0
13 Sep 2024	0	0	0
14 Sep 2024	346	168	112
15 Sep 2024	0	0	0
16 Sep 2024	0	0	0
17 Sep 2024	0	0	0
18 Sep 2024	0	0	0
19 Sep 2024	21	88	96
20 Sep 2024	0	1	0
21 Sep 2024	0	0	0
22 Sep 2024	46	88	196
23 Sep 2024	0	0	0
24 Sep 2024	0	0	0
25 Sep 2024	13	10	9
26 Sep 2024	1	1	1
27 Sep 2024	1	1	1
28 Sep 2024	0	0	0
29 Sep 2024	0	0	0
30 Sep 2024	1	1	1
01 Oct 2024	0	0	0
02 Oct 2024	--	--	--
03 Oct 2024	--	--	--
04 Oct 2024	--	--	--
05 Oct 2024	--	--	--
06 Oct 2024	--	--	--
07 Oct 2024	--	--	--

$m/s^{1.75}$	13 - 17 Bailey St	
Daily VDV	Day	Night
29 Aug 2024	0.01 (Z)	0.01 (Z)
30 Aug 2024	0.01 (Z)	0.01 (Z)
31 Aug 2024	0.01 (Z)	0.01 (Z)
01 Sep 2024	0.01 (Z)	0.01 (Z)
02 Sep 2024	0.01 (Z)	0.01 (Z)
03 Sep 2024	0.01 (Z)	0.01 (Z)
04 Sep 2024	0.02 (X)	0.01 (Z)
05 Sep 2024	0.01 (Z)	0.01 (Z)
06 Sep 2024	0.01 (Z)	0.01 (Z)
07 Sep 2024	1.11 (Z)	0.01 (Z)
08 Sep 2024	1.58 (Z)	0.01 (Z)
09 Sep 2024	0.01 (Z)	0.01 (Z)
10 Sep 2024	0.01 (Z)	0.01 (Z)
11 Sep 2024	0.34 (Z)	0.01 (Z)
12 Sep 2024	0.01 (Z)	0.01 (Z)
13 Sep 2024	0.01 (Z)	0.01 (Z)
14 Sep 2024	2.48 (Z)	0.01 (Z)
15 Sep 2024	0.01 (Z)	0.01 (Z)
16 Sep 2024	0.01 (Z)	0.01 (Z)
17 Sep 2024	0.01 (Z)	0.01 (Z)
18 Sep 2024	0.01 (Z)	0.01 (Z)
19 Sep 2024	1.06 (Z)	0.01 (Z)
20 Sep 2024	0.01 (Z)	0.01 (Z)
21 Sep 2024	0.01 (Z)	0.01 (Z)
22 Sep 2024	2.8 (Z)	0.01 (Z)
23 Sep 2024	0.01 (Z)	0.01 (Z)
24 Sep 2024	0.01 (Z)	0.01 (Z)
25 Sep 2024	0.11 (Z)	0.01 (Z)
26 Sep 2024	0.03 (Z)	0.01 (Z)
27 Sep 2024	0.01 (Z)	0.01 (Z)
28 Sep 2024	0.01 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.01 (Z)
30 Sep 2024	0.01 (Z)	0.01 (Z)
01 Oct 2024	-- (Z)	-- (Z)
02 Oct 2024	-- (Z)	-- (Z)
03 Oct 2024	-- (Z)	-- (Z)
04 Oct 2024	-- (Z)	-- (Z)
05 Oct 2024	-- (Z)	-- (Z)
06 Oct 2024	-- (Z)	-- (Z)
07 Oct 2024	-- (Z)	-- (Z)

mm/s	13 - 17 Bailey St		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	--	--	--
09 Oct 2024	--	--	--
10 Oct 2024	--	--	--
11 Oct 2024	--	--	--
12 Oct 2024	--	--	--
13 Oct 2024	--	--	--
14 Oct 2024	--	--	--
15 Oct 2024	--	--	--
16 Oct 2024	--	--	--
17 Oct 2024	--	--	--
18 Oct 2024	--	--	--
19 Oct 2024	--	--	--
20 Oct 2024	--	--	--
	--	--	--

$m/s^{1.75}$	13 - 17 Bailey St	
Daily VDV	Day	Night
08 Oct 2024	-- (Z)	-- (Z)
09 Oct 2024	-- (Z)	-- (Z)
10 Oct 2024	-- (Z)	-- (Z)
11 Oct 2024	-- (Z)	-- (Z)
12 Oct 2024	-- (Z)	-- (Z)
13 Oct 2024	-- (Z)	-- (Z)
14 Oct 2024	-- (Z)	-- (Z)
15 Oct 2024	-- (Z)	-- (Z)
16 Oct 2024	-- (Z)	-- (Z)
17 Oct 2024	-- (Z)	-- (Z)
18 Oct 2024	-- (Z)	-- (Z)
19 Oct 2024	-- (Z)	-- (Z)
20 Oct 2024	-- (Z)	-- (Z)

mm/s	10 - 12 Hassall St		
Daily Max	X Peak	Y Peak	Z Peak
20 Jul 2024	0	0	0
21 Jul 2024	0	0	0
22 Jul 2024	0	0	0
23 Jul 2024	1	1	1
24 Jul 2024	3	4	1
25 Jul 2024	1	0	1
26 Jul 2024	1	1	1
27 Jul 2024	1	3	1
28 Jul 2024	2	3	0
29 Jul 2024	2	4	2
30 Jul 2024	1	2	1
31 Jul 2024	1	1	0
01 Aug 2024	1	1	0
02 Aug 2024	0	0	0
03 Aug 2024	0	0	0
04 Aug 2024	0	0	0
05 Aug 2024	0	0	0
06 Aug 2024	0	0	0
07 Aug 2024	0	0	2
08 Aug 2024	0	0	0
09 Aug 2024	0	0	0
10 Aug 2024	0	0	0
11 Aug 2024	0	0	0
12 Aug 2024	0	0	1
13 Aug 2024	0	0	1
14 Aug 2024	0	0	0
15 Aug 2024	0	0	0
16 Aug 2024	0	0	0
17 Aug 2024	0	0	0
18 Aug 2024	0	0	0
19 Aug 2024	0	0	0
20 Aug 2024	0	0	0
21 Aug 2024	0	0	0
22 Aug 2024	0	0	0
23 Aug 2024	0	0	0
24 Aug 2024	0	0	0
25 Aug 2024	0	0	0
26 Aug 2024	3	3	6
27 Aug 2024	0	0	0
28 Aug 2024	0	0	0

$m/s^{1.75}$	10 - 12 Hassall St	
Daily VDV	Day	Night
20 Jul 2024	0.03 (Z)	0.01 (Z)
21 Jul 2024	0.01 (Z)	0.01 (Z)
22 Jul 2024	0.01 (Z)	0.01 (Z)
23 Jul 2024	0.02 (Z)	0.01 (Y)
24 Jul 2024	0.05 (Y)	0.01 (Z)
25 Jul 2024	0.02 (Z)	0.01 (Z)
26 Jul 2024	0.02 (Z)	0.02 (Y)
27 Jul 2024	0.05 (Y)	0.01 (Y)
28 Jul 2024	0.02 (Y)	0.02 (Y)
29 Jul 2024	0.03 (Z)	0.02 (Y)
30 Jul 2024	0.04 (Y)	0.02 (Y)
31 Jul 2024	0.02 (Y)	0.02 (Y)
01 Aug 2024	0.02 (Y)	0.01 (Z)
02 Aug 2024	0.01 (Z)	0.01 (Z)
03 Aug 2024	0.01 (Z)	0.01 (Z)
04 Aug 2024	0.01 (Z)	0.01 (Z)
05 Aug 2024	0.01 (Z)	0.01 (Z)
06 Aug 2024	0.01 (Z)	0.01 (Z)
07 Aug 2024	0.04 (Z)	0.01 (Z)
08 Aug 2024	0.01 (Z)	0.01 (Z)
09 Aug 2024	0.01 (Z)	0.01 (Z)
10 Aug 2024	0.01 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.01 (Z)
12 Aug 2024	0.01 (Z)	0.01 (Z)
13 Aug 2024	0.02 (Z)	0.01 (Z)
14 Aug 2024	0.01 (Z)	0.01 (Z)
15 Aug 2024	0.01 (Z)	0.01 (Z)
16 Aug 2024	0.01 (Z)	0.01 (Z)
17 Aug 2024	0.01 (Z)	0.01 (Z)
18 Aug 2024	0.01 (Z)	0.01 (Z)
19 Aug 2024	0.01 (Z)	0.01 (Z)
20 Aug 2024	0.01 (Z)	0.01 (Z)
21 Aug 2024	0.01 (Z)	0.01 (Z)
22 Aug 2024	0.01 (Z)	0.01 (Z)
23 Aug 2024	0.01 (Z)	0.01 (Z)
24 Aug 2024	0.01 (Z)	0.01 (Z)
25 Aug 2024	0.01 (Z)	0.01 (Z)
26 Aug 2024	0.07 (Z)	0.01 (Z)
27 Aug 2024	0.01 (Z)	0.01 (Z)
28 Aug 2024	0.01 (Z)	0.01 (Z)

mm/s	10 - 12 Hassall St		
Daily Max	X Peak	Y Peak	Z Peak
29 Aug 2024	0	0	0
30 Aug 2024	0	0	1
31 Aug 2024	0	0	0
01 Sep 2024	0	0	0
02 Sep 2024	0	0	0
03 Sep 2024	1	1	5
04 Sep 2024	0	0	1
05 Sep 2024	0	0	0
06 Sep 2024	0	0	0
07 Sep 2024	0	0	0
08 Sep 2024	0	0	0
09 Sep 2024	0	0	0
10 Sep 2024	0	0	1
11 Sep 2024	0	0	0
12 Sep 2024	0	0	0
13 Sep 2024	0	0	0
14 Sep 2024	0	0	0
15 Sep 2024	0	0	0
16 Sep 2024	0	0	0
17 Sep 2024	0	0	0
18 Sep 2024	1	0	0
19 Sep 2024	0	0	0
20 Sep 2024	1	0	0
21 Sep 2024	0	0	0
22 Sep 2024	0	0	0
23 Sep 2024	0	0	3
24 Sep 2024	0	0	0
25 Sep 2024	0	0	0
26 Sep 2024	0	0	0
27 Sep 2024	0	0	0
28 Sep 2024	0	0	0
29 Sep 2024	0	0	0
30 Sep 2024	0	0	0
01 Oct 2024	0	0	0
02 Oct 2024	0	0	0
03 Oct 2024	0	0	0
04 Oct 2024	0	0	0
05 Oct 2024	0	0	0
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$	10 - 12 Hassall St	
Daily VDV	Day	Night
29 Aug 2024	0.01 (Z)	0.01 (Z)
30 Aug 2024	0.01 (Z)	0.01 (Z)
31 Aug 2024	0.01 (Z)	0.01 (Z)
01 Sep 2024	0.01 (Z)	0.01 (Z)
02 Sep 2024	0.01 (Z)	0.01 (Z)
03 Sep 2024	0.07 (Z)	0.01 (Z)
04 Sep 2024	0.01 (Z)	0.01 (Z)
05 Sep 2024	0.01 (Z)	0.01 (Z)
06 Sep 2024	0.01 (Z)	0.01 (Z)
07 Sep 2024	0.01 (Z)	0.01 (Z)
08 Sep 2024	0.01 (Z)	0.01 (Z)
09 Sep 2024	0.01 (Z)	0.01 (Z)
10 Sep 2024	0.01 (Z)	0.01 (Z)
11 Sep 2024	0.01 (Z)	0.01 (Z)
12 Sep 2024	0.01 (Z)	0.01 (Z)
13 Sep 2024	0.01 (Z)	0.01 (Z)
14 Sep 2024	0.01 (Z)	0.01 (Z)
15 Sep 2024	0.01 (Z)	0.01 (Z)
16 Sep 2024	0.01 (Z)	0.01 (Z)
17 Sep 2024	0.01 (Z)	0.01 (Z)
18 Sep 2024	0.01 (Z)	0.01 (Z)
19 Sep 2024	0.01 (Z)	0.01 (Z)
20 Sep 2024	0.01 (Z)	0.01 (Z)
21 Sep 2024	0.01 (Z)	0.01 (Z)
22 Sep 2024	0.01 (Z)	0.01 (Z)
23 Sep 2024	0.04 (Z)	0.01 (Z)
24 Sep 2024	0.01 (Z)	0.01 (Z)
25 Sep 2024	0.01 (Z)	0.01 (Z)
26 Sep 2024	0.01 (Z)	0.01 (Z)
27 Sep 2024	0.01 (Z)	0.01 (Z)
28 Sep 2024	0.01 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.01 (Z)
30 Sep 2024	0.01 (Z)	0.01 (Z)
01 Oct 2024	0.01 (Z)	0.01 (Z)
02 Oct 2024	0.01 (Z)	0.01 (Z)
03 Oct 2024	0.01 (Z)	0.01 (Z)
04 Oct 2024	0.01 (Z)	0.01 (Z)
05 Oct 2024	0.01 (Z)	0.01 (Z)
06 Oct 2024	0.01 (Z)	0.01 (Z)
07 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	10 - 12 Hassall St		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	0	0
09 Oct 2024	0	0	0
10 Oct 2024	0	0	0
11 Oct 2024	0	0	1
12 Oct 2024	0	0	0
13 Oct 2024	0	0	0
14 Oct 2024	0	0	0
15 Oct 2024	0	0	3
16 Oct 2024	0	0	0
17 Oct 2024	0	0	0
18 Oct 2024	0	0	0
19 Oct 2024	0	0	1
20 Oct 2024	0	0	1
	--	--	--

$m/s^{1.75}$	10 - 12 Hassall St	
Daily VDV	Day	Night
08 Oct 2024	0.01 (Z)	0.01 (Z)
09 Oct 2024	0.01 (Z)	0.01 (Z)
10 Oct 2024	0.01 (Z)	0.01 (Z)
11 Oct 2024	0.01 (Z)	0.01 (Z)
12 Oct 2024	0.01 (Z)	0.01 (Z)
13 Oct 2024	0.01 (Z)	0.01 (Z)
14 Oct 2024	0.01 (Z)	0.01 (Z)
15 Oct 2024	0.04 (Z)	0.01 (Z)
16 Oct 2024	0.01 (Z)	0.01 (Z)
17 Oct 2024	0.01 (Z)	0.01 (Z)
18 Oct 2024	0.01 (Z)	0.01 (Z)
19 Oct 2024	0.01 (Z)	0.01 (Z)
20 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s Daily Max	32A Alexandra Ave X Peak	Y Peak	Z Peak
20 Jul 2024	0	1	0
21 Jul 2024	0	0	0
22 Jul 2024	1	1	1
23 Jul 2024	0	0	1
24 Jul 2024	1	1	1
25 Jul 2024	1	1	1
26 Jul 2024	1	1	1
27 Jul 2024	1	1	1
28 Jul 2024	0	0	0
29 Jul 2024	1	1	1
30 Jul 2024	1	0	1
31 Jul 2024	1	0	1
01 Aug 2024	0	0	1
02 Aug 2024	0	0	1
03 Aug 2024	0	0	0
04 Aug 2024	0	0	0
05 Aug 2024	0	0	1
06 Aug 2024	0	0	1
07 Aug 2024	0	1	1
08 Aug 2024	0	1	1
09 Aug 2024	0	0	0
10 Aug 2024	0	0	0
11 Aug 2024	0	0	0
12 Aug 2024	1	1	1
13 Aug 2024	1	1	1
14 Aug 2024	0	0	0
15 Aug 2024	0	0	0
16 Aug 2024	0	1	1
17 Aug 2024	0	0	0
18 Aug 2024	0	0	0
19 Aug 2024	0	0	0
20 Aug 2024	1	2	2
21 Aug 2024	0	0	1
22 Aug 2024	0	0	0
23 Aug 2024	0	0	0
24 Aug 2024	0	0	0
25 Aug 2024	0	0	0
26 Aug 2024	1	1	0
27 Aug 2024	0	0	1
28 Aug 2024	1	1	1

$m/s^{1.75}$ Daily VDV	32A Alexandra Ave Day	Night
20 Jul 2024	0.01 (Z)	0.01 (Z)
21 Jul 2024	0.01 (Z)	0.01 (Z)
22 Jul 2024	0.04 (Z)	0.03 (Z)
23 Jul 2024	0.03 (Z)	0.02 (Z)
24 Jul 2024	0.04 (Z)	0.03 (Z)
25 Jul 2024	0.04 (Z)	0.03 (Z)
26 Jul 2024	0.04 (Z)	0.03 (Z)
27 Jul 2024	0.02 (Z)	0.01 (Z)
28 Jul 2024	0.01 (Z)	0.01 (Z)
29 Jul 2024	0.04 (Z)	0.04 (Z)
30 Jul 2024	0.03 (Z)	0.03 (Z)
31 Jul 2024	0.03 (Z)	0.03 (Z)
01 Aug 2024	0.03 (Z)	0.03 (Z)
02 Aug 2024	0.02 (Z)	0.01 (Z)
03 Aug 2024	0.02 (Z)	0.01 (Z)
04 Aug 2024	0.01 (Z)	0.01 (Z)
05 Aug 2024	0.02 (Z)	0.02 (Z)
06 Aug 2024	0.02 (Z)	0.03 (Z)
07 Aug 2024	0.02 (Z)	0.02 (Z)
08 Aug 2024	0.02 (Z)	0.01 (Z)
09 Aug 2024	0.01 (Z)	0.01 (Z)
10 Aug 2024	0.01 (Z)	0.01 (Z)
11 Aug 2024	0.01 (Z)	0.01 (Z)
12 Aug 2024	0.03 (Z)	0.03 (Z)
13 Aug 2024	0.02 (Z)	0.01 (Z)
14 Aug 2024	0.01 (Z)	0.01 (Z)
15 Aug 2024	0.01 (Z)	0.02 (Z)
16 Aug 2024	0.04 (Z)	0.01 (Z)
17 Aug 2024	0.02 (Z)	0.01 (Z)
18 Aug 2024	0.01 (Z)	0.01 (Z)
19 Aug 2024	0.02 (Z)	0.01 (Z)
20 Aug 2024	0.04 (Z)	0.01 (Z)
21 Aug 2024	0.01 (Z)	0.01 (Z)
22 Aug 2024	0.01 (Z)	0.01 (Z)
23 Aug 2024	0.01 (Z)	0.01 (Z)
24 Aug 2024	0.01 (Z)	0.01 (Z)
25 Aug 2024	0.01 (Z)	0.01 (Z)
26 Aug 2024	0.02 (Z)	0.01 (Z)
27 Aug 2024	0.01 (Z)	0.01 (Z)
28 Aug 2024	0.02 (Z)	0.01 (Z)

mm/s Daily Max	32A Alexandra Ave X Peak	Y Peak	Z Peak
29 Aug 2024	0	0	0
30 Aug 2024	0	0	0
31 Aug 2024	0	0	0
01 Sep 2024	0	0	0
02 Sep 2024	0	0	0
03 Sep 2024	0	1	0
04 Sep 2024	0	0	0
05 Sep 2024	1	1	1
06 Sep 2024	0	1	0
07 Sep 2024	0	1	1
08 Sep 2024	0	0	0
09 Sep 2024	1	1	1
10 Sep 2024	1	1	0
11 Sep 2024	1	1	1
12 Sep 2024	1	1	1
13 Sep 2024	1	1	1
14 Sep 2024	0	1	0
15 Sep 2024	1	1	0
16 Sep 2024	1	1	0
17 Sep 2024	2	2	1
18 Sep 2024	1	2	1
19 Sep 2024	0	1	0
20 Sep 2024	0	0	0
21 Sep 2024	1	1	2
22 Sep 2024	0	0	0
23 Sep 2024	0	0	0
24 Sep 2024	0	0	0
25 Sep 2024	0	0	0
26 Sep 2024	0	0	0
27 Sep 2024	0	0	0
28 Sep 2024	1	0	1
29 Sep 2024	0	0	0
30 Sep 2024	0	0	0
01 Oct 2024	0	0	0
02 Oct 2024	0	1	0
03 Oct 2024	1	6	1
04 Oct 2024	0	0	0
05 Oct 2024	0	0	0
06 Oct 2024	0	0	0
07 Oct 2024	0	0	0

$m/s^{1.75}$ Daily VDV	32A Alexandra Ave Day	Night
29 Aug 2024	0.01 (Z)	0.01 (Z)
30 Aug 2024	0.01 (Z)	0.01 (Z)
31 Aug 2024	0.01 (Z)	0.01 (Z)
01 Sep 2024	0.01 (Z)	0.01 (Z)
02 Sep 2024	0.01 (Z)	0.01 (Z)
03 Sep 2024	0.01 (Z)	0.01 (Z)
04 Sep 2024	0.01 (Z)	0.01 (Z)
05 Sep 2024	0.01 (Z)	0.01 (Z)
06 Sep 2024	0.01 (Z)	0.01 (Z)
07 Sep 2024	0.01 (Z)	0.01 (Z)
08 Sep 2024	0.01 (Z)	0.01 (Z)
09 Sep 2024	0.01 (Z)	0.01 (Z)
10 Sep 2024	0.01 (Z)	0.01 (Z)
11 Sep 2024	0.01 (Z)	0.01 (Z)
12 Sep 2024	0.01 (Z)	0.01 (Z)
13 Sep 2024	0.01 (Z)	0.01 (Z)
14 Sep 2024	0.01 (Z)	0.01 (Z)
15 Sep 2024	0.01 (Z)	0.01 (Z)
16 Sep 2024	0.01 (Z)	0.01 (Z)
17 Sep 2024	0.02 (Z)	0.01 (Z)
18 Sep 2024	0.01 (Z)	0.01 (Z)
19 Sep 2024	0.01 (Z)	0.01 (Z)
20 Sep 2024	0.01 (Z)	0.01 (Z)
21 Sep 2024	0.02 (Z)	0.01 (Z)
22 Sep 2024	0.01 (Z)	0.01 (Z)
23 Sep 2024	0.01 (Z)	0.01 (Z)
24 Sep 2024	0.01 (Z)	0.01 (Z)
25 Sep 2024	0.01 (Z)	0.01 (Z)
26 Sep 2024	0.01 (Z)	0.01 (Z)
27 Sep 2024	0.01 (Z)	0.01 (Z)
28 Sep 2024	0.01 (Z)	0.01 (Z)
29 Sep 2024	0.01 (Z)	0.01 (Z)
30 Sep 2024	0.01 (Z)	0.01 (Z)
01 Oct 2024	0.01 (Z)	0.01 (Z)
02 Oct 2024	0.01 (Z)	0.01 (Y)
03 Oct 2024	0.01 (Z)	0.01 (Z)
04 Oct 2024	0.01 (Z)	0.01 (Z)
05 Oct 2024	0.01 (Z)	0.01 (Z)
06 Oct 2024	0.01 (Z)	0.01 (Z)
07 Oct 2024	0.01 (Z)	0.01 (Z)

mm/s	32A Alexandra Ave		
Daily Max	X Peak	Y Peak	Z Peak
08 Oct 2024	0	0	0
09 Oct 2024	0	0	0
10 Oct 2024	0	0	0
11 Oct 2024	0	0	0
12 Oct 2024	0	0	0
13 Oct 2024	0	0	0
14 Oct 2024	0	0	0
15 Oct 2024	0	0	0
17 Oct 2024	0	0	0
18 Oct 2024	0	1	0
19 Oct 2024	0	1	0
20 Oct 2024	0	0	0
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$m/s^{1.75}$	32A Alexandra Ave	
Daily VDV	Day	Night
08 Oct 2024	0.01 (Z)	0.01 (Z)
09 Oct 2024	0.01 (Z)	0.01 (Z)
10 Oct 2024	0.01 (Z)	0.01 (Z)
11 Oct 2024	0.01 (Z)	0.01 (Z)
12 Oct 2024	0.01 (Z)	0.01 (Z)
13 Oct 2024	0.01 (Z)	0.01 (Z)
14 Oct 2024	0.01 (Z)	0.01 (Z)
15 Oct 2024	0.01 (Z)	0.01 (Z)
17 Oct 2024	0.01 (Z)	0.01 (Z)
18 Oct 2024	0.02 (Z)	0.01 (Z)
19 Oct 2024	0.02 (Z)	0.01 (Z)
20 Oct 2024	0.01 (Z)	0.01 (Z)

Daily Notes

Date and time	By	Monitoring Point(s)	Note
26 Jul 2024	Lochlan		7mm of rain overnight
29 Jul 2024	Lochlan		9mm of rain over weekend (27-29th July).
14 Aug 2024	Lochlan		4mm of rain recorded at 2pm
26 Sep 2024	Lochlan		9mm of rain recorded overnight
15 Oct 2024	Lochlan		7mm rain recorded overnight

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
FIBISA	-	Omnidots swarm	-	-
JISAYI	-	Omnidots swarm	-	-
JISAYI	-	Omnidots swarm	-	-
QAVULI	-	Omnidots swarm	-	-
NUWACA	-	Omnidots swarm	14 Jul 2024	14 Jul 2026
VIB-000006	-	SiteHive Hexanode	-	-
VIB-000021	-	SiteHive Hexanode	05 Sep 2024	05 Sep 2026
VIB-000024	32A Alexandra Ave	SiteHive Hexanode	05 Jul 2023	05 Jul 2025
VIB-000010	Hassall Street	SiteHive Hexanode	04 Jul 2023	04 Jul 2025
VIB-000030	10 - 12 Hassall St	SiteHive Hexanode	05 Jul 2023	05 Jul 2025
VIB-000072	13 - 17 Bailey St	SiteHive Hexanode	18 Oct 2024	18 Oct 2026
C22	Hawksbury Avenue	Sigicom c22	-	-

Gamuda Laing O'Rourke

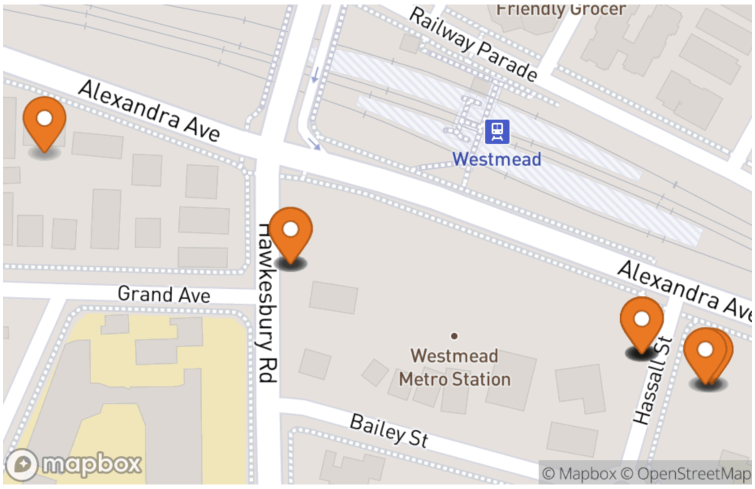
Sydney Metro West WTP Westmead

Unattended Vibration Monitoring 21Oct24_19Jan25 Westmead

Monitoring Devices

Date Range 21 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
FIBISA	-
JISAYI	-
JISAYI	-
QAVULI	-
NUWACA	-
VIB-000006	-
VIB-000021	-
VIB-000024	32A Alexandra Ave
VIB-000010	Hassall Street
VIB-000030	10 - 12 Hassall St
C22	Hawksbury Avenue
VIB-000319	10-12 Hassall Street



Vibration Monitoring Statistics

Hassall Street

Value	Unit		Channel
8	mm/s	MAXIMUM	X Peak
3	mm/s	MAXIMUM	Y Peak
8	mm/s	MAXIMUM	Z Peak

Hassall Street

Value	Unit		Channel
0.02	$m/s^{1.75}$	MAXIMUM	X VDV
0.01	$m/s^{1.75}$	MAXIMUM	Y VDV
0.18	$m/s^{1.75}$	MAXIMUM	Z VDV

10-12 Hassall Street

Value	Unit		Channel
0	mm/s	MAXIMUM	X Peak
0	mm/s	MAXIMUM	Y Peak
1	mm/s	MAXIMUM	Z Peak

10-12 Hassall Street

Value	Unit		Channel
--	$m/s^{1.75}$	MAXIMUM	X VDV
--	$m/s^{1.75}$	MAXIMUM	Y VDV
0.01	$m/s^{1.75}$	MAXIMUM	Z VDV

Hawksbury Avenue

Value	Unit		Channel
--	mm/s	MAXIMUM	X Peak
--	mm/s	MAXIMUM	Y Peak
--	mm/s	MAXIMUM	Z Peak

Hawksbury Avenue

Value	Unit		Channel
--	$m/s^{1.75}$	MAXIMUM	X VDV
--	$m/s^{1.75}$	MAXIMUM	Y VDV
--	$m/s^{1.75}$	MAXIMUM	Z VDV

10 - 12 Hassall St

Value	Unit		Channel
0	mm/s	MAXIMUM	X Peak
0	mm/s	MAXIMUM	Y Peak
2	mm/s	MAXIMUM	Z Peak

10 - 12 Hassall St

Value	Unit		Channel
--	$m/s^{1.75}$	MAXIMUM	X VDV
--	$m/s^{1.75}$	MAXIMUM	Y VDV
0.02	$m/s^{1.75}$	MAXIMUM	Z VDV

32A Alexandra Ave

Value	Unit		Channel
114	mm/s	MAXIMUM	X Peak
135	mm/s	MAXIMUM	Y Peak
65	mm/s	MAXIMUM	Z Peak

32A Alexandra Ave

Value	Unit		Channel
0.33	$m/s^{1.75}$	MAXIMUM	X VDV
0.35	$m/s^{1.75}$	MAXIMUM	Y VDV
0.61	$m/s^{1.75}$	MAXIMUM	Z VDV

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	0	0	0
22 Oct 2024	0	0	0
23 Oct 2024	0	0	0
24 Oct 2024	0	0	0
25 Oct 2024	0	0	0
26 Oct 2024	0	0	0
27 Oct 2024	0	0	0
28 Oct 2024	1	0	0
29 Oct 2024	0	0	0
30 Oct 2024	1	0	1
31 Oct 2024	0	0	0
01 Nov 2024	0	0	0
02 Nov 2024	1	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	0	0	0
06 Nov 2024	0	0	0
07 Nov 2024	0	0	0
08 Nov 2024	0	0	0
09 Nov 2024	0	0	0
10 Nov 2024	0	0	0
11 Nov 2024	1	0	0
12 Nov 2024	2	1	2
13 Nov 2024	1	1	3
14 Nov 2024	8	3	8
15 Nov 2024	0	0	0
16 Nov 2024	0	0	0
17 Nov 2024	0	0	0
18 Nov 2024	0	1	1
19 Nov 2024	1	0	1
20 Nov 2024	0	0	0
21 Nov 2024	0	0	0
22 Nov 2024	0	0	0
23 Nov 2024	0	0	0
24 Nov 2024	0	0	0
25 Nov 2024	0	0	0
26 Nov 2024	0	0	0
27 Nov 2024	0	0	0
28 Nov 2024	0	0	0
29 Nov 2024	0	0	0

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
21 Oct 2024	0.01 (Z)	0.01 (Z)
22 Oct 2024	0.01 (Z)	0.01 (Z)
23 Oct 2024	0.01 (Z)	0.01 (Z)
24 Oct 2024	0.01 (Z)	0.01 (Z)
25 Oct 2024	0.01 (Z)	0.01 (Z)
26 Oct 2024	0.01 (Z)	0.01 (Z)
27 Oct 2024	0.01 (Z)	0.01 (Z)
28 Oct 2024	0.01 (Z)	0.01 (Z)
29 Oct 2024	0.01 (Z)	0.01 (Z)
30 Oct 2024	0.02 (Z)	0.01 (Z)
31 Oct 2024	0.01 (Z)	0.01 (Z)
01 Nov 2024	0.01 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.01 (Z)	0.01 (Z)
05 Nov 2024	0.01 (Z)	0.01 (Z)
06 Nov 2024	0.01 (Z)	0.01 (Z)
07 Nov 2024	0.01 (Z)	0.01 (Z)
08 Nov 2024	0.01 (Z)	0.01 (Z)
09 Nov 2024	0.01 (Z)	0.01 (Z)
10 Nov 2024	0.01 (Z)	0.01 (Z)
11 Nov 2024	0.01 (Z)	0.01 (Z)
12 Nov 2024	0.05 (Z)	0.01 (Z)
13 Nov 2024	0.04 (Z)	0.01 (Z)
14 Nov 2024	0.18 (Z)	0.01 (Z)
15 Nov 2024	0.01 (Z)	0.01 (Z)
16 Nov 2024	0.01 (Z)	0.01 (Z)
17 Nov 2024	0.01 (Z)	0.01 (Z)
18 Nov 2024	0.02 (Z)	0.01 (Z)
19 Nov 2024	0.02 (Z)	0.01 (Z)
20 Nov 2024	0.01 (Z)	0.01 (Z)
21 Nov 2024	0.01 (Z)	0.01 (Z)
22 Nov 2024	0.01 (Z)	0.01 (Z)
23 Nov 2024	0.02 (Z)	0.01 (Z)
24 Nov 2024	0.01 (Z)	0.01 (Z)
25 Nov 2024	0.01 (Z)	-- (Z)
26 Nov 2024	0.01 (Z)	0.01 (Z)
27 Nov 2024	0.01 (Z)	0.01 (Z)
28 Nov 2024	0.01 (Z)	0.01 (Z)
29 Nov 2024	0.01 (Z)	0.01 (Z)

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	0	0	0
04 Dec 2024	1	0	0
05 Dec 2024	1	0	0
06 Dec 2024	0	0	0
07 Dec 2024	0	0	0
08 Dec 2024	1	0	0
09 Dec 2024	0	0	0
10 Dec 2024	0	0	0
11 Dec 2024	1	0	0
12 Dec 2024	0	0	0
13 Dec 2024	0	0	0
14 Dec 2024	1	0	1
15 Dec 2024	0	0	0
16 Dec 2024	1	0	0
17 Dec 2024	0	0	0
18 Dec 2024	0	0	0
19 Dec 2024	1	0	0
20 Dec 2024	1	1	1
21 Dec 2024	1	0	0
22 Dec 2024	1	0	0
23 Dec 2024	1	1	0
24 Dec 2024	1	0	1
25 Dec 2024	2	1	1
26 Dec 2024	0	0	0
27 Dec 2024	2	0	0
28 Dec 2024	0	0	0
29 Dec 2024	1	0	0
30 Dec 2024	1	0	0
31 Dec 2024	2	0	1
01 Jan 2025	1	0	0
02 Jan 2025	1	0	0
03 Jan 2025	1	0	0
04 Jan 2025	0	0	0
05 Jan 2025	1	0	1
06 Jan 2025	1	0	0
07 Jan 2025	0	0	0
08 Jan 2025	0	0	0

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	0.01 (Z)
03 Dec 2024	0.01 (Z)	0.01 (Z)
04 Dec 2024	0.02 (Z)	0.01 (Z)
05 Dec 2024	0.01 (Z)	0.01 (Z)
06 Dec 2024	0.01 (Z)	0.01 (Z)
07 Dec 2024	0.01 (Z)	0.01 (Z)
08 Dec 2024	0.02 (Z)	0.01 (Z)
09 Dec 2024	0.01 (Z)	0.01 (Z)
10 Dec 2024	0.01 (Z)	0.01 (Z)
11 Dec 2024	0.01 (Z)	0.01 (Z)
12 Dec 2024	0.01 (Z)	0.01 (Z)
13 Dec 2024	0.01 (Z)	0.01 (Z)
14 Dec 2024	0.01 (Z)	0.01 (Z)
15 Dec 2024	0.01 (Z)	0.01 (Z)
16 Dec 2024	0.01 (Z)	0.01 (Z)
17 Dec 2024	0.01 (Z)	0.01 (Z)
18 Dec 2024	0.01 (Z)	0.01 (Z)
19 Dec 2024	0.01 (Z)	0.01 (Z)
20 Dec 2024	0.02 (Z)	0.01 (Z)
21 Dec 2024	0.01 (Z)	0.01 (Z)
22 Dec 2024	0.01 (Z)	0.01 (Z)
23 Dec 2024	0.01 (Z)	0.01 (Z)
24 Dec 2024	0.02 (Z)	0.01 (Z)
25 Dec 2024	0.02 (Z)	0.01 (Z)
26 Dec 2024	0.01 (Z)	0.01 (Z)
27 Dec 2024	0.01 (Z)	0.01 (Z)
28 Dec 2024	0.01 (Z)	0.01 (Z)
29 Dec 2024	0.01 (Z)	0.01 (Z)
30 Dec 2024	0.01 (Z)	0.01 (Z)
31 Dec 2024	0.02 (Z)	0.01 (Z)
01 Jan 2025	0.01 (Z)	0.01 (Z)
02 Jan 2025	0.01 (Z)	0.01 (Z)
03 Jan 2025	0.01 (Z)	0.01 (Z)
04 Jan 2025	0.01 (Z)	0.02 (Z)
05 Jan 2025	0.01 (Z)	0.01 (Z)
06 Jan 2025	0.01 (Z)	0.01 (Z)
07 Jan 2025	0.01 (Z)	0.01 (Z)
08 Jan 2025	0.01 (Z)	0.01 (Z)

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	0	0	0
10 Jan 2025	1	1	1
11 Jan 2025	0	0	0
12 Jan 2025	0	0	0
13 Jan 2025	0	0	0
14 Jan 2025	0	0	0
15 Jan 2025	0	0	0
16 Jan 2025	1	0	0
17 Jan 2025	0	0	0
18 Jan 2025	0	0	0
19 Jan 2025	1	0	1
	--	--	--

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
09 Jan 2025	0.01 (Z)	0.01 (Z)
10 Jan 2025	0.02 (Z)	0.01 (Z)
11 Jan 2025	0.01 (Z)	0.01 (Z)
12 Jan 2025	0.01 (Z)	0.01 (Z)
13 Jan 2025	0.01 (Z)	0.01 (Z)
14 Jan 2025	0.01 (Z)	0.01 (Z)
15 Jan 2025	0.01 (Z)	0.01 (Z)
16 Jan 2025	0.01 (Z)	0.01 (Z)
17 Jan 2025	0.01 (Z)	0.01 (Z)
18 Jan 2025	0.01 (Z)	0.01 (Z)
19 Jan 2025	0.02 (Z)	0.01 (Z)

mm/s	10-12 Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

$m/s^{1.75}$	10-12 Hassall Street	
Daily VDV	Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)
29 Nov 2024	-- (Z)	-- (Z)

mm/s Daily Max	10-12 Hassall Street X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	0	0	0
06 Dec 2024	0	0	1
07 Dec 2024	0	0	1
08 Dec 2024	0	0	1
09 Dec 2024	0	0	0
10 Dec 2024	0	0	1
11 Dec 2024	0	0	0
12 Dec 2024	0	0	0
13 Dec 2024	0	0	0
14 Dec 2024	0	0	0
15 Dec 2024	0	0	0
16 Dec 2024	0	0	1
17 Dec 2024	0	0	0
18 Dec 2024	0	0	0
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$ Daily VDV	10-12 Hassall Street Day	Night
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	0.01 (Z)	0.01 (Z)
06 Dec 2024	0.01 (Z)	0.01 (Z)
07 Dec 2024	0.01 (Z)	0.01 (Z)
08 Dec 2024	0.01 (Z)	0.01 (Z)
09 Dec 2024	0.01 (Z)	0.01 (Z)
10 Dec 2024	0.01 (Z)	0.01 (Z)
11 Dec 2024	0.01 (Z)	0.01 (Z)
12 Dec 2024	0.01 (Z)	0.01 (Z)
13 Dec 2024	0.01 (Z)	0.01 (Z)
14 Dec 2024	0.01 (Z)	0.01 (Z)
15 Dec 2024	0.01 (Z)	0.01 (Z)
16 Dec 2024	0.01 (Z)	0.01 (Z)
17 Dec 2024	0.01 (Z)	0.01 (Z)
18 Dec 2024	0.01 (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	10-12 Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	0	0	0
10 Jan 2025	0	0	0
11 Jan 2025	0	0	0
12 Jan 2025	0	0	0
13 Jan 2025	0	0	0
14 Jan 2025	0	0	0
15 Jan 2025	0	0	0
16 Jan 2025	0	0	0
17 Jan 2025	0	0	0
18 Jan 2025	0	0	0
19 Jan 2025	0	0	0
	--	--	--

$m/s^{1.75}$	10-12 Hassall Street	
Daily VDV	Day	Night
09 Jan 2025	0.01 (Z)	0.01 (Z)
10 Jan 2025	0.01 (Z)	0.01 (Z)
11 Jan 2025	0.01 (Z)	0.01 (Z)
12 Jan 2025	0.01 (Z)	0.01 (Z)
13 Jan 2025	0.01 (Z)	0.01 (Z)
14 Jan 2025	0.01 (Z)	0.01 (Z)
15 Jan 2025	0.01 (Z)	0.01 (Z)
16 Jan 2025	0.01 (Z)	0.01 (Z)
17 Jan 2025	0.01 (Z)	0.01 (Z)
18 Jan 2025	0.01 (Z)	0.01 (Z)
19 Jan 2025	0.01 (Z)	0.01 (Z)

mm/s	Hawksbury Avenue		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	--	--	--
22 Oct 2024	--	--	--
23 Oct 2024	--	--	--
24 Oct 2024	--	--	--
25 Oct 2024	--	--	--
26 Oct 2024	--	--	--
27 Oct 2024	--	--	--
28 Oct 2024	--	--	--
29 Oct 2024	--	--	--
30 Oct 2024	--	--	--
31 Oct 2024	--	--	--
01 Nov 2024	--	--	--
02 Nov 2024	--	--	--
03 Nov 2024	--	--	--
04 Nov 2024	--	--	--
05 Nov 2024	--	--	--
06 Nov 2024	--	--	--
07 Nov 2024	--	--	--
08 Nov 2024	--	--	--
09 Nov 2024	--	--	--
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	--	--	--

$m/s^{1.75}$	Hawksbury Avenue	
Daily VDV	Day	Night
21 Oct 2024	-- (Z)	-- (Z)
22 Oct 2024	-- (Z)	-- (Z)
23 Oct 2024	-- (Z)	-- (Z)
24 Oct 2024	-- (Z)	-- (Z)
25 Oct 2024	-- (Z)	-- (Z)
26 Oct 2024	-- (Z)	-- (Z)
27 Oct 2024	-- (Z)	-- (Z)
28 Oct 2024	-- (Z)	-- (Z)
29 Oct 2024	-- (Z)	-- (Z)
30 Oct 2024	-- (Z)	-- (Z)
31 Oct 2024	-- (Z)	-- (Z)
01 Nov 2024	-- (Z)	-- (Z)
02 Nov 2024	-- (Z)	-- (Z)
03 Nov 2024	-- (Z)	-- (Z)
04 Nov 2024	-- (Z)	-- (Z)
05 Nov 2024	-- (Z)	-- (Z)
06 Nov 2024	-- (Z)	-- (Z)
07 Nov 2024	-- (Z)	-- (Z)
08 Nov 2024	-- (Z)	-- (Z)
09 Nov 2024	-- (Z)	-- (Z)
10 Nov 2024	-- (Z)	-- (Z)
11 Nov 2024	-- (Z)	-- (Z)
12 Nov 2024	-- (Z)	-- (Z)
13 Nov 2024	-- (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)
29 Nov 2024	-- (Z)	-- (Z)

mm/s	Hawksbury Avenue		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	--	--	--
01 Dec 2024	--	--	--
02 Dec 2024	--	--	--
03 Dec 2024	--	--	--
04 Dec 2024	--	--	--
05 Dec 2024	--	--	--
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	Hawksbury Avenue	
Daily VDV	Day	Night
30 Nov 2024	-- (Z)	-- (Z)
01 Dec 2024	-- (Z)	-- (Z)
02 Dec 2024	-- (Z)	-- (Z)
03 Dec 2024	-- (Z)	-- (Z)
04 Dec 2024	-- (Z)	-- (Z)
05 Dec 2024	-- (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	Hawksbury Avenue		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	Hawksbury Avenue	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	10 - 12 Hassall St		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	0	0	1
22 Oct 2024	0	0	0
23 Oct 2024	0	0	0
24 Oct 2024	0	0	0
25 Oct 2024	0	0	0
26 Oct 2024	0	0	0
27 Oct 2024	0	0	0
28 Oct 2024	0	0	1
29 Oct 2024	0	0	0
30 Oct 2024	0	0	1
31 Oct 2024	0	0	0
01 Nov 2024	0	0	0
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	1
05 Nov 2024	0	0	1
06 Nov 2024	0	0	0
07 Nov 2024	0	0	0
08 Nov 2024	0	0	2
09 Nov 2024	0	0	0
10 Nov 2024	--	--	--
11 Nov 2024	--	--	--
12 Nov 2024	--	--	--
13 Nov 2024	--	--	--
14 Nov 2024	--	--	--
15 Nov 2024	--	--	--
16 Nov 2024	--	--	--
17 Nov 2024	--	--	--
18 Nov 2024	--	--	--
19 Nov 2024	--	--	--
20 Nov 2024	--	--	--
21 Nov 2024	--	--	--
22 Nov 2024	--	--	--
23 Nov 2024	--	--	--
24 Nov 2024	--	--	--
25 Nov 2024	--	--	--
26 Nov 2024	--	--	--
27 Nov 2024	--	--	--
28 Nov 2024	--	--	--
29 Nov 2024	0	0	0

$m/s^{1.75}$	10 - 12 Hassall St	
Daily VDV	Day	Night
21 Oct 2024	0.01 (Z)	0.01 (Z)
22 Oct 2024	0.01 (Z)	0.01 (Z)
23 Oct 2024	0.01 (Z)	0.01 (Z)
24 Oct 2024	0.01 (Z)	0.01 (Z)
25 Oct 2024	0.01 (Z)	0.01 (Z)
26 Oct 2024	0.01 (Z)	0.01 (Z)
27 Oct 2024	0.01 (Z)	0.01 (Z)
28 Oct 2024	0.02 (Z)	0.01 (Z)
29 Oct 2024	0.01 (Z)	0.01 (Z)
30 Oct 2024	0.01 (Z)	0.01 (Z)
31 Oct 2024	0.01 (Z)	0.01 (Z)
01 Nov 2024	0.01 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.01 (Z)	0.01 (Z)
05 Nov 2024	0.01 (Z)	0.01 (Z)
06 Nov 2024	0.01 (Z)	0.01 (Z)
07 Nov 2024	0.01 (Z)	0.01 (Z)
08 Nov 2024	0.01 (Z)	0.01 (Z)
09 Nov 2024	0.01 (Z)	0.01 (Z)
10 Nov 2024	0.01 (Z)	0.01 (Z)
11 Nov 2024	0.01 (Z)	0.01 (Z)
12 Nov 2024	0.01 (Z)	0.01 (Z)
13 Nov 2024	0.01 (Z)	-- (Z)
14 Nov 2024	-- (Z)	-- (Z)
15 Nov 2024	-- (Z)	-- (Z)
16 Nov 2024	-- (Z)	-- (Z)
17 Nov 2024	-- (Z)	-- (Z)
18 Nov 2024	-- (Z)	-- (Z)
19 Nov 2024	-- (Z)	-- (Z)
20 Nov 2024	-- (Z)	-- (Z)
21 Nov 2024	-- (Z)	-- (Z)
22 Nov 2024	-- (Z)	-- (Z)
23 Nov 2024	-- (Z)	-- (Z)
24 Nov 2024	-- (Z)	-- (Z)
25 Nov 2024	-- (Z)	-- (Z)
26 Nov 2024	-- (Z)	-- (Z)
27 Nov 2024	-- (Z)	-- (Z)
28 Nov 2024	-- (Z)	-- (Z)
29 Nov 2024	0.01 (Z)	0.01 (Z)

mm/s	10 - 12 Hassall St		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	0	0	0
04 Dec 2024	0	0	0
05 Dec 2024	0	0	0
06 Dec 2024	--	--	--
07 Dec 2024	--	--	--
08 Dec 2024	--	--	--
09 Dec 2024	--	--	--
10 Dec 2024	--	--	--
11 Dec 2024	--	--	--
12 Dec 2024	--	--	--
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	10 - 12 Hassall St	
Daily VDV	Day	Night
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	0.01 (Z)
03 Dec 2024	0.01 (Z)	0.01 (Z)
04 Dec 2024	0.01 (Z)	0.01 (Z)
05 Dec 2024	0.01 (Z)	-- (Z)
06 Dec 2024	-- (Z)	-- (Z)
07 Dec 2024	-- (Z)	-- (Z)
08 Dec 2024	-- (Z)	-- (Z)
09 Dec 2024	-- (Z)	-- (Z)
10 Dec 2024	-- (Z)	-- (Z)
11 Dec 2024	-- (Z)	-- (Z)
12 Dec 2024	-- (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	10 - 12 Hassall St		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
15 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	10 - 12 Hassall St	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
15 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

mm/s	32A Alexandra Ave		
Daily Max	X Peak	Y Peak	Z Peak
21 Oct 2024	0	0	0
22 Oct 2024	0	0	0
23 Oct 2024	0	0	0
24 Oct 2024	0	0	0
25 Oct 2024	0	0	0
26 Oct 2024	0	0	0
27 Oct 2024	0	0	0
28 Oct 2024	0	0	0
29 Oct 2024	0	0	0
30 Oct 2024	114	135	65
31 Oct 2024	0	0	0
01 Nov 2024	0	0	1
02 Nov 2024	0	0	0
03 Nov 2024	0	0	0
04 Nov 2024	0	0	0
05 Nov 2024	0	0	0
06 Nov 2024	0	0	0
07 Nov 2024	0	0	0
08 Nov 2024	0	0	0
09 Nov 2024	0	0	0
10 Nov 2024	0	0	0
11 Nov 2024	0	0	0
12 Nov 2024	0	0	0
13 Nov 2024	0	1	0
14 Nov 2024	0	0	0
15 Nov 2024	0	0	0
16 Nov 2024	0	0	0
17 Nov 2024	0	0	0
18 Nov 2024	0	1	0
19 Nov 2024	0	0	0
20 Nov 2024	0	0	0
21 Nov 2024	0	0	0
22 Nov 2024	0	0	0
23 Nov 2024	0	0	0
24 Nov 2024	0	0	0
25 Nov 2024	0	1	0
26 Nov 2024	0	0	0
27 Nov 2024	0	0	0
28 Nov 2024	0	0	0
29 Nov 2024	0	0	0

$m/s^{1.75}$	32A Alexandra Ave	
Daily VDV	Day	Night
21 Oct 2024	0.02 (Z)	0.01 (Z)
22 Oct 2024	0.01 (Z)	0.01 (Z)
23 Oct 2024	0.01 (Z)	0.01 (Z)
24 Oct 2024	0.01 (Z)	0.01 (Z)
25 Oct 2024	0.02 (Z)	0.01 (Z)
26 Oct 2024	0.01 (Z)	0.01 (Z)
27 Oct 2024	0.01 (Z)	0.01 (Z)
28 Oct 2024	0.01 (Z)	0.01 (Z)
29 Oct 2024	0.01 (Z)	0.01 (Z)
30 Oct 2024	0.61 (Z)	0.01 (Z)
31 Oct 2024	0.01 (Z)	0.01 (Z)
01 Nov 2024	0.01 (Z)	0.01 (Z)
02 Nov 2024	0.01 (Z)	0.01 (Z)
03 Nov 2024	0.01 (Z)	0.01 (Z)
04 Nov 2024	0.01 (Z)	0.01 (Z)
05 Nov 2024	0.01 (Z)	0.01 (Z)
06 Nov 2024	0.01 (Z)	0.01 (Z)
07 Nov 2024	0.01 (Z)	0.01 (Z)
08 Nov 2024	0.01 (Z)	0.01 (Z)
09 Nov 2024	0.01 (Z)	0.01 (Z)
10 Nov 2024	0.01 (Z)	0.01 (Z)
11 Nov 2024	0.01 (Z)	0.01 (Z)
12 Nov 2024	0.01 (Z)	0.01 (Z)
13 Nov 2024	0.01 (Z)	0.01 (Z)
14 Nov 2024	0.01 (Z)	0.01 (Z)
15 Nov 2024	0.01 (Z)	0.01 (Z)
16 Nov 2024	0.01 (Z)	0.01 (Z)
17 Nov 2024	0.01 (Z)	0.01 (Z)
18 Nov 2024	0.01 (Z)	0.01 (Z)
19 Nov 2024	0.01 (Z)	0.01 (Z)
20 Nov 2024	0.01 (Z)	0.01 (Z)
21 Nov 2024	0.01 (Z)	0.01 (Z)
22 Nov 2024	0.01 (Z)	0.01 (Z)
23 Nov 2024	0.01 (Z)	0.01 (Z)
24 Nov 2024	0.01 (Z)	0.01 (Z)
25 Nov 2024	0.01 (Z)	0.01 (Z)
26 Nov 2024	0.01 (Z)	0.01 (Z)
27 Nov 2024	0.01 (Z)	0.01 (Z)
28 Nov 2024	0.01 (Z)	0.01 (Z)
29 Nov 2024	0.01 (Z)	0.01 (Z)

mm/s	32A Alexandra Ave		
Daily Max	X Peak	Y Peak	Z Peak
30 Nov 2024	0	0	0
01 Dec 2024	0	0	0
02 Dec 2024	0	0	0
03 Dec 2024	0	0	0
04 Dec 2024	0	0	0
05 Dec 2024	0	0	0
06 Dec 2024	0	0	0
07 Dec 2024	1	0	1
08 Dec 2024	0	0	0
09 Dec 2024	0	0	0
10 Dec 2024	0	0	0
11 Dec 2024	0	0	0
12 Dec 2024	0	0	0
13 Dec 2024	--	--	--
14 Dec 2024	--	--	--
15 Dec 2024	--	--	--
16 Dec 2024	--	--	--
17 Dec 2024	--	--	--
18 Dec 2024	--	--	--
19 Dec 2024	--	--	--
20 Dec 2024	--	--	--
21 Dec 2024	--	--	--
22 Dec 2024	--	--	--
23 Dec 2024	--	--	--
24 Dec 2024	--	--	--
25 Dec 2024	--	--	--
26 Dec 2024	--	--	--
27 Dec 2024	--	--	--
28 Dec 2024	--	--	--
29 Dec 2024	--	--	--
30 Dec 2024	--	--	--
31 Dec 2024	--	--	--
01 Jan 2025	--	--	--
02 Jan 2025	--	--	--
03 Jan 2025	--	--	--
04 Jan 2025	--	--	--
05 Jan 2025	--	--	--
06 Jan 2025	--	--	--
07 Jan 2025	--	--	--
08 Jan 2025	--	--	--

$m/s^{1.75}$	32A Alexandra Ave	
Daily VDV	Day	Night
30 Nov 2024	0.01 (Z)	0.01 (Z)
01 Dec 2024	0.01 (Z)	0.01 (Z)
02 Dec 2024	0.01 (Z)	0.01 (Z)
03 Dec 2024	0.01 (Z)	0.01 (Z)
04 Dec 2024	0.01 (Z)	0.01 (Z)
05 Dec 2024	0.01 (Z)	0.01 (Z)
06 Dec 2024	0.01 (Z)	0.01 (Z)
07 Dec 2024	0.01 (Z)	0.01 (Z)
08 Dec 2024	0.01 (Z)	0.01 (Z)
09 Dec 2024	0.01 (Z)	0.01 (Z)
10 Dec 2024	0.01 (Z)	0.01 (Z)
11 Dec 2024	0.01 (Z)	0.01 (Z)
12 Dec 2024	0.01 (Z)	-- (Z)
13 Dec 2024	-- (Z)	-- (Z)
14 Dec 2024	-- (Z)	-- (Z)
15 Dec 2024	-- (Z)	-- (Z)
16 Dec 2024	-- (Z)	-- (Z)
17 Dec 2024	-- (Z)	-- (Z)
18 Dec 2024	-- (Z)	-- (Z)
19 Dec 2024	-- (Z)	-- (Z)
20 Dec 2024	-- (Z)	-- (Z)
21 Dec 2024	-- (Z)	-- (Z)
22 Dec 2024	-- (Z)	-- (Z)
23 Dec 2024	-- (Z)	-- (Z)
24 Dec 2024	-- (Z)	-- (Z)
25 Dec 2024	-- (Z)	-- (Z)
26 Dec 2024	-- (Z)	-- (Z)
27 Dec 2024	-- (Z)	-- (Z)
28 Dec 2024	-- (Z)	-- (Z)
29 Dec 2024	-- (Z)	-- (Z)
30 Dec 2024	-- (Z)	-- (Z)
31 Dec 2024	-- (Z)	-- (Z)
01 Jan 2025	-- (Z)	-- (Z)
02 Jan 2025	-- (Z)	-- (Z)
03 Jan 2025	-- (Z)	-- (Z)
04 Jan 2025	-- (Z)	-- (Z)
05 Jan 2025	-- (Z)	-- (Z)
06 Jan 2025	-- (Z)	-- (Z)
07 Jan 2025	-- (Z)	-- (Z)
08 Jan 2025	-- (Z)	-- (Z)

mm/s	32A Alexandra Ave		
Daily Max	X Peak	Y Peak	Z Peak
09 Jan 2025	--	--	--
10 Jan 2025	--	--	--
11 Jan 2025	--	--	--
12 Jan 2025	--	--	--
13 Jan 2025	--	--	--
14 Jan 2025	--	--	--
16 Jan 2025	--	--	--
17 Jan 2025	--	--	--
18 Jan 2025	--	--	--
19 Jan 2025	--	--	--
	--	--	--

$m/s^{1.75}$	32A Alexandra Ave	
Daily VDV	Day	Night
09 Jan 2025	-- (Z)	-- (Z)
10 Jan 2025	-- (Z)	-- (Z)
11 Jan 2025	-- (Z)	-- (Z)
12 Jan 2025	-- (Z)	-- (Z)
13 Jan 2025	-- (Z)	-- (Z)
14 Jan 2025	-- (Z)	-- (Z)
16 Jan 2025	-- (Z)	-- (Z)
17 Jan 2025	-- (Z)	-- (Z)
18 Jan 2025	-- (Z)	-- (Z)
19 Jan 2025	-- (Z)	-- (Z)

Daily Notes

Date and time	By	Monitoring Point(s)	Note
01 Nov 2024	Lochlan		2.5mm of rain recorded overnight
05 Nov 2024	Lochlan		3mm Rain recorded since 9am 4th November
18 Nov 2024	Lochlan		20.5mm recorded over weekend Friday 15th - Monday 18th November
02 Dec 2024	Lochlan		21mm of rain over weekend (29/11-2/12)
09 Dec 2024	Lochlan		17mm of rainfall recorded over weekend 7-9 December
07 Jan 2025	Lochlan		16mm rain overnight till 9am this morning.
16 Jan 2025	Lochlan		31mm overnight until 10am

Device Details

Device Serial	Monitoring Points	Model	Calibration Date	Calibration Due
FIBISA	-	Omnidots swarm	-	-
JISAYI	-	Omnidots swarm	-	-
JISAYI	-	Omnidots swarm	-	-
QAVULI	-	Omnidots swarm	-	-
NUWACA	-	Omnidots swarm	14 Jul 2024	14 Jul 2026
VIB-000006	-	SiteHive Hexanode	-	-
VIB-000021	-	SiteHive Hexanode	05 Sep 2024	05 Sep 2026
VIB-000024	32A Alexandra Ave	SiteHive Hexanode	05 Jul 2023	05 Jul 2025
VIB-000010	Hassall Street	SiteHive Hexanode	04 Jul 2023	04 Jul 2025
VIB-000030	10 - 12 Hassall St	SiteHive Hexanode	05 Jul 2023	05 Jul 2025
C22	Hawksbury Avenue	Sigicom c22	-	-
VIB-000319	10-12 Hassall Street	SiteHive Hexanode	18 Nov 2024	18 Nov 2026

Attachment 4 –Vibration Monitoring Summary – where there are exceedances

Gamuda Laing O'Rourke

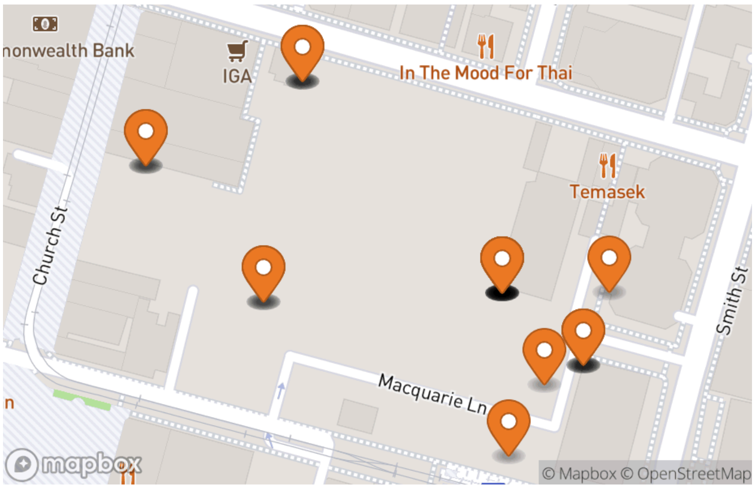
Sydney Metro West WTP Parramatta

Vibration Events 20Jul24-19Oct24

Monitoring Devices

Date Range 20 Jul 2024 - 19 Oct 2024

Device Serial	Monitoring Points
LECIYE	George St Shops, 218 Church Street, Town/Convict Drain
FIBISA	240 Church Street Parramatta
GEGAWE	Roxy Theatre
VIB-000182	-
VIB-000182	New Macquarie Lane Hoarding
VIB-000174	-
VIB-000197	25 Smith Street, 75 George St
VIB-000206	25 Smith Street
VIB-000208	Roxy Theatre



Vibration Explained Events

Time	Rule	Values	Monitoring	Category	Event Notes
Wed, 24 Jul 2024					
04:56 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	70.082	218 Church Street	**NR** Monitor knocked	monitor knocked by worker
Thu, 25 Jul 2024					
10:34 AM - 10:35 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.869, 5.083	240 Church Street Parramatta	**NR** Concrete Breaking Works	concrete slab breaking works threshold for cosmetic damage was not exceeded
03:11 PM - 03:17 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	471.18, 203.711	218 Church Street	**NR** Monitor knocked	monitor knocked by worker
Fri, 26 Jul 2024					
09:23 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	178.41	218 Church Street	**NR** Monitor displaced	relocation of vibration monitor

Time	Rule	Values	Monitoring	Category	Event Notes
Mon, 29 Jul 2024					
08:09 AM - 08:21 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.962, 5.098	218 Church Street	**NR** Working in close proximity to monitor	OzCut coring concrete in close proximity to the monitor.
09:29 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	585.466	218 Church Street	**NR** Monitor displaced	Monitor moved further from the coring works location
10:31 AM - 10:53 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.518, 9.117, 5.017	218 Church Street	**NR** Working in close proximity to monitor	concrete coring works are taking place in close proximity to the monitor
01:31 PM - 02:44 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	18.74, 7.141, 14.727, 14.774, 5.472, 13.564, 6.123, 5.462, 5.67, 5.438	218 Church Street		concrete coring rig drilling in close proximity to the monitor. Cosmetic damage criteria were not triggered
Tue, 30 Jul 2024					
07:55 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	35.71	218 Church Street	**NR** Working in close proximity to monitor	concrete coring taking place in close proximity to the monitor
08:16 AM - 09:44 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	7.163, 6.751, 5.435, 5.591, 6.027, 6.583, 7.242, 5.819, 7.6, 6.268, 5.631, 6.193, 7.047, 6.104, 5.502, 89.457, 26.667	218 Church Street	**NR** Working in close proximity to monitor	Concrete coring works are taking place in close proximity to monitor. Criteria for cosmetic damage were not exceeded.

Time	Rule	Values	Monitoring	Category	Event Notes
Thu, 01 Aug 2024					
07:07 AM - 09:39 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.538, 45.187, 54.908, 27.877, 23.667, 59.142, 7.858, 8.647, 93.532, 153.021, 5.928, 35.877, 13.204, 25.463, 69.458, 8.228, 931.75	218 Church Street	**NR** Working in close proximity to monitor	excavator working right next to the monitor. monitor was moved away from the excavator work area.
12:08 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	344.754	240 Church Street Parramatta	**NR** Monitor knocked	monitor knocked by a worker
Fri, 02 Aug 2024					
11:24 AM - 03:49 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.053, 8.109, 8.088	218 Church Street		Concrete breaking works using a hydraulic hammer. Cosmetic damage criteria weren't triggered.
Sat, 03 Aug 2024					
08:11 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	8.191	218 Church Street	**NR** Concrete Breaking Works	hydraulic hammer used to break concrete. recorded event is below cosmetic damage criteria.
Mon, 05 Aug 2024					
01:20 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	11.307	218 Church Street	**NR** Working in close proximity to monitor	no vibration intensive works took place during the time of the event. Vibration resulted from workers movement in close proximity to monitor.

Time	Rule	Values	Monitoring	Category	Event Notes
Tue, 06 Aug 2024					
03:57 PM - 05:16 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	188.867, 156.445, 7.769, 5.408, 52.99, 15.238, 149.135, 12.697, 19.563, 6.105, 94.889, 36.199, 13.708, 20.72, 30.739, 10.118, 84.903	218 Church Street	**NR** Working in close proximity to monitor	no vibration intensive works were taking place during the time of the events. Workers were actively moving items close to the monitor, resulting in the recorded exceedances.
Wed, 07 Aug 2024					
03:03 AM - 03:47 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	81.568, 14.495	218 Church Street	**NR** Monitor knocked	materials placed next to the monitor
03:49 PM - 03:58 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.768, 15.437, 6.081	240 Church Street Parramatta		excavator working and evening fill material in close proximity to monitor. No vibration intensive works were taking place.
Fri, 09 Aug 2024					
02:01 PM - 02:02 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	90.641, 26.075	Roxy Theatre	**NR** Installation	Monitor reinstalled
Mon, 19 Aug 2024					
09:21 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	60.865	Roxy Theatre	**NR** Monitor knocked	Removing battery for charging as device was showing offline. No vibration-intensive activities being completed at time
Thu, 22 Aug 2024					
01:03 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	12.123	Roxy Theatre	**NR** Monitor knocked	worker placed something on the top of the monitor's box

Time	Rule	Values	Monitoring	Category	Event Notes
Tue, 03 Sep 2024					
04:06 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	420.151	Roxy Theatre	**NR** Monitor knocked	Surveyors working in the immediate area have made contact with the monitoring device.
Sat, 14 Sep 2024					
11:16 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	18.627	Roxy Theatre	**NR** Monitor knocked	Labourers in the area moving vac truck hose for fish tanks have bumped the monitoring device.
Sat, 21 Sep 2024					
08:33 AM - 12:28 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.424, 5.819	Roxy Theatre	**NR** Monitor knocked	Personnel moving in vicinity of the monitor. No vibration-intensive activities being completed on-site with shot-creting of the nozzles being undertaken.
Mon, 30 Sep 2024					
11:28 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	15.363	240 Church Street Parramatta	**NR** Monitor displaced	Site team inspecting scaffolding behind container wall and have bumped monitor inadvertently. No vibration intensive activities being completed at the time of the event.
Tue, 01 Oct 2024					
01:16 AM - 07:47 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	6.166, 7.127	Roxy Theatre	**NR** Human movement	monitor knocked by worker movement.
07:47 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	7.127	Roxy Theatre	**NR** Monitor knocked	monitor knocked by worker

Time	Rule	Values	Monitoring	Category	Event Notes
Wed, 09 Oct 2024					
09:20 AM - 09:21 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	237.5, 230.898	Roxy Theatre	**NR** Monitor knocked	monitor being checked
Thu, 10 Oct 2024					
10:41 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	271.281	Roxy Theatre	**NR** Monitor displaced	monitor being troubleshooted.
Fri, 11 Oct 2024					
04:10 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	144.275	Roxy Theatre	**NR** Monitor displaced	Monitor displaced during checks being completed for connectivity. Monitor reinstated. Alert not related to GLC works.
07:03 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	10.701	Roxy Theatre	**NR** Monitor knocked	Electricians working in area to reinstall lighting and have made contact with the monitor. Alert not related to GLC works.
Mon, 14 Oct 2024					
03:06 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	10.512	Roxy Theatre	**NR** Human movement	Labourers replacing matting and cleaning up the area around the monitor. No vibration intensive activities being completed at the time of this event.

Daily Notes

Date and time	By	Note
26 Jul 2024	Hala	rain gauge reading ~ 6mm
27 Jul 2024	Hala	Adjacent project, 197 Church Street were rock hammering at ~ 7:30am
29 Jul 2024	Hala	Rain gauge reading ~9.5mm
05 Aug 2024	Kellie	0.5mm of rainfall noted in rain gauge following weekend
12 Aug 2024	Kellie	Rainfall of 1mm recorded in site gauge
13 Aug 2024	Kellie	Rainfall recorded in rain gauge at 8am = 1.5mm
15 Aug 2024	Hala	Rain gauge reading ~5.5mm
19 Aug 2024	Kellie	Site rainfall for weekend recorded = 1.5mm
29 Aug 2024	Hala	moderate winds between 15 to 25 Km/hr and moderate bush fires warning causing dust to be generated. Site surface has been sprayed and swept throughout the day and misters have been functional down in the box.
26 Sep 2024	Kellie	Site rainfall gauge at 6:30am = 6mm
27 Sep 2024	Kellie	Daily rainfall recorded in on-site gauge at 7:45am = 41mm
30 Sep 2024	Kellie	9.5mm of rainfall over the weekend in gauge @7:41am
03 Oct 2024	Hala	Rain gauge reading from yesterday's rainfall is ~4mm.
11 Oct 2024	Kellie	Rainfall recorded in site gauge @9:42am = 2.5mm
14 Oct 2024	Kellie	Rainfall recorded in site gauge @9:00am = 1mm
15 Oct 2024	Kellie	Overnight rainfall in site gauge @6:40am = 8mm
16 Oct 2024	Hala	rain gauge reading ~3mm.
18 Oct 2024	Kellie	Rainfall recorded in site rain gauge at 3:12pm = 1.5mm

Gamuda Laing O'Rourke

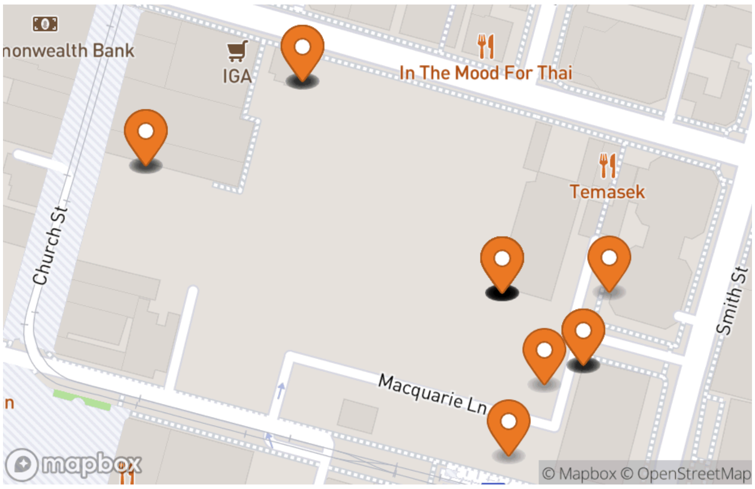
Sydney Metro West WTP Parramatta

Parramatta Vibration Events 20Oct24-19Jan25

Monitoring Devices

Date Range 20 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
LECIYE	Town/Convict Drain
FIBISA	240 Church Street Parramatta
GEGAWE	George St Shops
VIB-000182	-
VIB-000182	New Macquarie Lane Hoarding
VIB-000174	-
VIB-000197	75 George St
VIB-000206	25 Smith Street
VIB-000208	Roxy Theatre



Vibration Explained Events

Time	Rule	Values	Monitoring	Category	Event Notes
Mon, 28 Oct 2024					
09:16 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.161	240 Church Street Parramatta	**NR** Installation	Monitor displaced during battery re-installation.
Wed, 30 Oct 2024					
02:17 PM - 02:19 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	36.732, 20.626	Roxy Theatre	**NR** Working in close proximity to monitor	Scaffold bars being placed in close proximity to the monitor
Thu, 31 Oct 2024					
08:25 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	6.821	Roxy Theatre	**NR** Working in close proximity to monitor	Surveyors placing items next to the monitor
Wed, 06 Nov 2024					
02:03 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	181.567	Roxy Theatre	**NR** Monitor knocked	monitor checked by worker
Wed, 13 Nov 2024					
02:59 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	13.598	Roxy Theatre	**NR** Monitor knocked	monitor knocked by worker
Sun, 17 Nov 2024					
07:38 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	6.822	240 Church Street Parramatta	**NR** Weather Induced: Heavy Rainfall	heavy rainfall affecting readings

Time	Rule	Values	Monitoring	Category	Event Notes
Mon, 06 Jan 2025					
07:10 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	74.231	Roxy Theatre	**NR** Battery Check	battery being recharged

Daily Notes

Date and time	By	Monitoring Point(s)	Note
21 Oct 2024	Kellie		Rainfall recorded in rain gauge over the weekend period = 4.5mm
25 Oct 2024	Kellie		Rainfall recorded in site gauge @8:30am = 3mm
01 Nov 2024	Kellie		Daily rainfall recorded at 7:38am = 2.5mm
04 Nov 2024	Kellie		No works on-site - RDO
08 Nov 2024	Kellie		Rainfall in site gauge from overnight falls = 7.5mm
18 Nov 2024	Kellie		Rainfall recorded in site gauge at 7:35am = 21.5mm
28 Nov 2024	Kellie		Site rainfall recorded in gauge at 9:20am = 5mm
29 Nov 2024	Hala		rain gauge reading ~2mm
03 Dec 2024	Hala		rain gauge reading is ~ 14.5mm over the weekend and Monday (RDO)
09 Dec 2024	Hala		rainfall over the weekend ~15.5mm.
18 Dec 2024	Hala		rain gauge reading is ~5mm
06 Jan 2025	Hala		rain gauge reading after the Christmas shutdown is ~ 1mm.
07 Jan 2025	Hala		rain gauge reading is ~ 13mm.
09 Jan 2025	Hala		rain gauge reading ~ 26.5mm.
13 Jan 2025	Hala		rain gauge reading over Friday and the weekend is ~ 25.5mm.
16 Jan 2025	Hala		rain gauge reading is ~ 25mm

Gamuda Laing O'Rourke

SiteHive

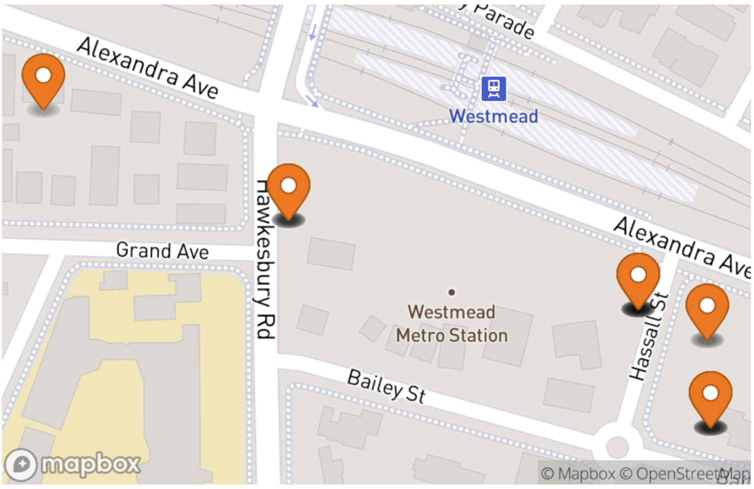
Sydney Metro West WTP Westmead

Westmead Vibration Events 20Jul24_19Oct24

Monitoring Devices

Date Range 20 Jul 2024 - 19 Oct 2024

Device Serial	Monitoring Points
FIBISA	-
JISAYI	-
JISAYI	-
QAVULI	-
NUWACA	-
VIB-000006	-
VIB-000021	-
VIB-000024	32A Alexandra Ave
VIB-000010	Hassall Street
VIB-000030	10 - 12 Hassall St
VIB-000072	13 - 17 Bailey St
C22	Hawksbury Avenue



Vibration Explained Events

Time	Rule	Values	Monitoring	Category	Event Notes
Sun, 21 Jul 2024					
06:05 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	52.136	13 - 17 Bailey St	**NR** Non GLC related	No GLC works were occurring on the day of the exceedance
Wed, 24 Jul 2024					
08:05 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.083	10 - 12 Hassall St		GLC were working at the time of the exceedance, however no rock breaking activities had commenced. Exceedance is likely a result continuous vibrations that are currently being recorded by the device and are not a result of GLC.
01:06 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	11.33	13 - 17 Bailey St	**NR** Human Interaction	No works were being undertaken at the time of the exceedance (lunch break) - exceedance was likely a result of interference from apartment residents.
Fri, 26 Jul 2024					
09:16 AM - 09:17 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	551.313, 65.433	Hassall Street	**NR** Human Interaction	GLC staff knocked device while re-instating noise monitoring device.
Sat, 27 Jul 2024					
05:59 PM - 06:00 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	847.996, 133.672	13 - 17 Bailey St	**NR** Human Interaction	No GLC works occurring at the time of the exceedances - disturbed by apartment residents.

Time	Rule	Values	Monitoring	Category	Event Notes
Sun, 28 Jul 2024					
04:10 PM - 06:14 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	8.519, 61.231, 72.718, 19.67, 353.463, 21.952, 38.735, 16.525, 18.051, 33.654	13 - 17 Bailey St	**NR** Non GLC related	No GLC works occurring on day of exceedance.
Mon, 29 Jul 2024					
12:38 PM - 12:41 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	38.264, 44.823	13 - 17 Bailey St	**NR** Non GLC related	No GLC works at the time of exceedance (lunch break) - not considered GLC related.
12:45 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	23.157	Hassall Street	**NR** Human Interaction	GLC staff replaced silt sock over device.
02:45 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	21.472	Hassall Street	**NR** Human Interaction	Device was bumped during GLC, Metro and ER environmental inspection - not work related.
04:57 PM - 05:15 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	80.267, 29.024, 26.462, 7.074	13 - 17 Bailey St	**NR** Human Interaction	No GLC works occurring at the time of the exceedance (transition between day and night shifts) exceedance was a result of human interaction.
Tue, 30 Jul 2024					
04:45 PM - 04:49 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.309, 36.689	13 - 17 Bailey St	**NR** NR - Non GLC related	No GLC works being undertaken during time of exceedance (shift rotation).

Time	Rule	Values	Monitoring	Category	Event Notes
Wed, 31 Jul 2024					
09:04 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.954	Hassall Street	**NR** Equipment installation	Re-instated sediment sock over device.
05:19 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	14.68	13 - 17 Bailey St	**NR** NR - Non GLC related	No GLC works occurring at the time of exceedance (shift rotation).
Thu, 01 Aug 2024					
05:00 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	11.775	13 - 17 Bailey St		No GLC works at time of exceedance - shift change.
Fri, 02 Aug 2024					
05:28 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	6.222	13 - 17 Bailey St		No GLC works at time of exceedance - shift change.
06:13 PM - 06:31 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	13.269, 5.537	13 - 17 Bailey St		No vibration intensive GLC works being undertaken at the time of exceedance - likely a result of car parking adjacent device.
Sat, 03 Aug 2024					
01:13 PM - 02:48 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	11.922, 8.33	13 - 17 Bailey St	**NR** Non GLC related	No GLC works occurring at time of exceedance
Sun, 04 Aug 2024					
05:20 PM - 06:15 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	43.667, 409.451, 24.011, 23.865	13 - 17 Bailey St	**NR** Non GLC related	No GLC works occurring on day of exceedances.

Time	Rule	Values	Monitoring	Category	Event Notes
Tue, 06 Aug 2024					
04:46 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	7.845	13 - 17 Bailey St		shift change - no works occurring at time of exceedance.
05:16 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	49.144	13 - 17 Bailey St	**NR** Non GLC related	shift change - no works occurring at time of exceedance.
05:53 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	25.73	13 - 17 Bailey St		No vibration intensive GLC works being undertaken at the time of exceedance - likely a result of car parking adjacent device.
Wed, 07 Aug 2024					
04:46 PM - 05:17 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	11.199, 8.615	13 - 17 Bailey St		None GLC - no works were being undertaken at the time of exceedance (shift change)
Thu, 08 Aug 2024					
04:13 PM - 04:18 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	45.886, 345.817	13 - 17 Bailey St		No vibration works being undertaken at the time of exceedance - non glc related.
04:42 PM - 04:59 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.248, 227.319	13 - 17 Bailey St		No GLC works being undertaken at the time of exceedance - shift change.
Fri, 09 Aug 2024					
05:39 PM - 05:40 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	206.229, 17.101	13 - 17 Bailey St		Non GLC related - shift change, no works occuring
Mon, 12 Aug 2024					
05:05 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	19.597	13 - 17 Bailey St	**NR** Non GLC related	Non GLC related - no works undertaken, shift change

Time	Rule	Values	Monitoring	Category	Event Notes
Thu, 15 Aug 2024					
04:31 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	12.196	13 - 17 Bailey St	**NR** Non GLC related	No GLC works were occurring at the time of the exceedance.
Mon, 26 Aug 2024					
11:18 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	6.509	10 - 12 Hassall St	**NR** Non GLC related	No vibration intensive works being undertaken at the time of the exceedance (spoil load out only) - exceedance due to devices being bumped in carpark.
Tue, 03 Sep 2024					
08:32 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.284	10 - 12 Hassall St	**NR** Non GLC related	No GLC works were being undertaken at the time of the exceedance (Westmead photo in tunnel was being undertaken).
Wed, 04 Sep 2024					
01:11 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.16	13 - 17 Bailey St		Exceedance occurred during site lunch break - no works were being undertaken.
Sat, 07 Sep 2024					
04:27 PM - 04:54 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	101.4, 11.792	13 - 17 Bailey St	**NR** Non GLC related	No GLC works were being undertaken at the time of the exceedance
Sun, 08 Sep 2024					
04:08 PM - 05:58 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	116.821, 6.785	13 - 17 Bailey St	**NR** Non GLC related	No GLC works were being undertaken at the time of the exceedance

Time	Rule	Values	Monitoring	Category	Event Notes
Wed, 11 Sep 2024					
12:24 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	15.339	13 - 17 Bailey St	**NR** NR - Non GLC related	No GLC works were being undertaken at the time of the exceedance (lunch). Checked on device straight after exceedance and noted that a car was parked immediately adjacent the device, which likely caused exceedance.
05:58 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	9.876	13 - 17 Bailey St		No GLC works were being undertaken at the time of the exceedance (night shift pre-start).
08:34 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	33.373	13 - 17 Bailey St	**NR** Non GLC related	Confirmed with night shift supervisor, no vibration intensive works were being undertaken at the time of the event (spoil movement only). Checked on device following morning and noted that container lid was off. Assumed to be non-GLC related disturbance to device.
Sat, 14 Sep 2024					
04:45 PM - 04:46 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	187.246, 70.569	13 - 17 Bailey St	**NR** NR - Non GLC related	Non GLC staff were on site at the time of the exceedance (Saturday afternoon), exceedance is non GLC related.
04:47 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	384.505	13 - 17 Bailey St		Non GLC staff were on site at the time of the exceedance (Saturday afternoon), exceedance is non GLC related.

Time	Rule	Values	Monitoring	Category	Event Notes
Thu, 19 Sep 2024					
02:09 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	129.068	13 - 17 Bailey St	**NR** Non GLC related	GLC were undertaking works at the time of the exceedance (breaking in box). Upon inspecting, a car was parked very close to the device and likely caused the exceedance.
Sun, 22 Sep 2024					
06:42 PM - 06:44 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	13.124, 201.202	13 - 17 Bailey St	**NR** Non GLC related	No GLC works were being undertaken at the time of the exceedance
Wed, 25 Sep 2024					
01:18 PM - 01:19 PM	**Third Party Vibration Threshold** 5.00 mm/s vSum	14.906, 11.264	13 - 17 Bailey St		No vibration intensive works were being undertaken at the time of the exceedance (Lunch break). No considered to be GLC related.
Thu, 03 Oct 2024					
12:33 AM - 12:39 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	5.326, 6.032, 5.68	32A Alexandra Ave		Confirmed with night shift supervisor, no vibration intensive works being undertaken at the time of the exceedance. No works were being undertaken in the stub tunnels at the time. Works are considered to be non-GLC related.

Daily Notes

Date and time	By	Monitoring Point(s)	Note
26 Jul 2024	Lochlan		7mm of rain overnight
29 Jul 2024	Lochlan		9mm of rain over weekend (27-29th July).
14 Aug 2024	Lochlan		4mm of rain recorded at 2pm
26 Sep 2024	Lochlan		9mm of rain recorded overnight
15 Oct 2024	Lochlan		7mm rain recorded overnight

Gamuda Laing O'Rourke

SiteHive

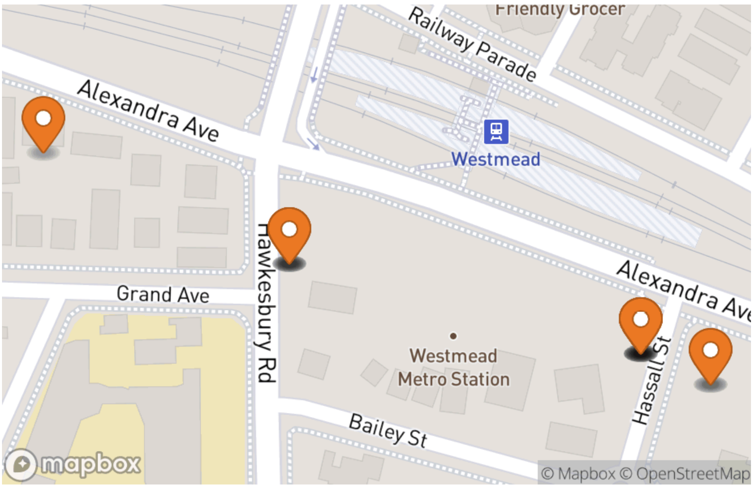
Sydney Metro West WTP Westmead

Westmead Vibration Events 20Oct24_19Jan25

Monitoring Devices

Date Range 20 Oct 2024 - 19 Jan 2025

Device Serial	Monitoring Points
FIBISA	-
JISAYI	-
JISAYI	-
QAVULI	-
NUWACA	-
VIB-000006	-
VIB-000021	-
VIB-000024	32A Alexandra Ave
VIB-000010	Hassall Street
VIB-000030	10 - 12 Hassall St
C22	Hawksbury Avenue



Vibration Explained Events

Time	Rule	Values	Monitoring	Category	Event Notes
Wed, 30 Oct 2024					
08:15 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	175.604	32A Alexandra Ave	**NR** Human Interaction	GLC staff moved device during battery replacement
Thu, 14 Nov 2024					
08:25 AM	**Third Party Vibration Threshold** 5.00 mm/s vSum	8.922	Hassall Street	**NR** Human Interaction	Electricians were moving cable in the area and bumped device. No plant and equipment was being used at the time of the exceedance.

Daily Notes

Date and time	By	Monitoring Point(s)	Note
01 Nov 2024	Lochlan		2.5mm of rain recorded overnight
05 Nov 2024	Lochlan		3mm Rain recorded since 9am 4th November
18 Nov 2024	Lochlan		20.5mm recorded over weekend Friday 15th - Monday 18th November
02 Dec 2024	Lochlan		21mm of rain over weekend (29/11-2/12)
09 Dec 2024	Lochlan		17mm of rainfall recorded over weekend 7-9 December
07 Jan 2025	Lochlan		16mm rain overnight till 9am this morning.
16 Jan 2025	Lochlan		31mm overnight until 10am

Attachment 5 –Calibration Certificates

Acoustic Research Labs Pty Ltd
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Sound Level Meter
IEC 61672-3:2013
Calibration Certificate

Calibration Number C24556

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : NL-52
Instrument Serial Number : 01010867
Microphone Serial Number : 25370
Pre-amplifier Serial Number : 11515
Firmware Version : v2.0

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	23.9 °C	**Ambient Temperature :**	22.6 °C
Relative Humidity :	41.6 %	**Relative Humidity :**	42.4 %
Barometric Pressure :	99.4 kPa	**Barometric Pressure :**	101.28 kPa

Calibration Technician : Peter Elters
Calibration Date : 17 Jul 2024
Secondary Check: Cooper Sallway
Report Issue Date : 22 Jul 2024

Approved Signatory : For Juan Aguero

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA
WORLD RECOGNISED ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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Sound Level Meter
IEC 61672-3:2013
Calibration Test Report

Calibration Number C24556

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : NL-52
Instrument Serial Number : 01010867
Microphone Serial Number : 25370
Pre-amplifier Serial Number : 11515
Firmware Version : v2.0

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	23.9 °C	**Ambient Temperature :**	22.6 °C
Relative Humidity :	41.6 %	**Relative Humidity :**	42.4 %
Barometric Pressure :	99.4 kPa	**Barometric Pressure :**	101.28 kPa

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Calibration Technician : Peter Elters
Calibration Date : 17 Jul 2024
Secondary Check: Cooper Sallway
Report Issue Date : 22 Jul 2024

Approved Signatory : For Juan Aguero

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

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Sound Calibrator

IEC 60942:2017

Calibration Certificate

Calibration Number C24557

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34524156

Atmospheric Conditions
Ambient Temperature : 23.8 °C
Relative Humidity : 40.9 %
Barometric Pressure : 99.43 kPa

Calibration Technician : Peter Elters
Calibration Date : 17 Jul 2024
Secondary Check: Cooper Sallway
Report Issue Date : 22 Jul 2024

Approved Signatory : For Juan Aguero

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.05	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.10 dB*	*Temperature*	*±0.1 °C*
Frequency	*±0.07 %*	*Relative Humidity*	*±1.9 %*
Distortion	*±0.20 %*	*Barometric Pressure*	*±0.11 kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA
WORLD RECOGNISED ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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Sound Calibrator
IEC 60942:2017
Calibration Test Report

Calibration Number C24557

Client Details	Gamuda Australia 100 Miller Street North Sydney NSW, 2060
Equipment Tested/ Model Number :	Rion NC-75
Instrument Serial Number :	34524156

Atmospheric Conditions

Ambient Temperature :	23.8 °C
Relative Humidity :	40.9 %
Barometric Pressure :	99.43 kPa

Calibration Technician :	Peter Elters	**Secondary Check:**	Cooper Sallway
Calibration Date :	17 Jul 2024	**Report Issue Date :**	22 Jul 2024

Approved Signatory : For Juan Aguero

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.10 dB*	*Temperature*	*±0.1 °C*
Frequency	*±0.07 %*	*Relative Humidity*	*±1.9 %*
Distortion	*±0.20 %*	*Barometric Pressure*	*±0.11 kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

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Sound Level Meter
IEC 61672-3:2013
Calibration Certificate

Calibration Number C24510

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : NL-52
Instrument Serial Number : 01010868
Microphone Serial Number : 25368
Pre-amplifier Serial Number : 11516
Firmware Version : v2.0

Pre-Test Atmospheric Conditions
Ambient Temperature : 20.3 °C
Relative Humidity : 56.8 %
Barometric Pressure : 100.91 kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.5 °C
Relative Humidity : 52.7 %
Barometric Pressure : 100.91 kPa

Calibration Technician : Peter Elters
Calibration Date : 9 Jul 2024

Secondary Check: Cooper Sallway
Report Issue Date : 9 Jul 2024

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA WORLD RECOGNISED ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
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Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3:2013
Calibration Test Report

Calibration Number C24510

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : NL-52
Instrument Serial Number : 01010868
Microphone Serial Number : 25368
Pre-amplifier Serial Number : 11516
Firmware Version : v2.0

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	20.3 °C	**Ambient Temperature :**	22.5 °C
Relative Humidity :	56.8 %	**Relative Humidity :**	52.7 %
Barometric Pressure :	100.91 kPa	**Barometric Pressure :**	100.91 kPa

Calibration Technician :	Peter Elters	**Secondary Check:**	Cooper Sallway
Calibration Date :	9 Jul 2024	**Report Issue Date :**	9 Jul 2024

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

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Sound Calibrator

IEC 60942:2017

Calibration Certificate

Calibration Number C24511

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34524157

Atmospheric Conditions
Ambient Temperature : 20.9 °C
Relative Humidity : 50.4 %
Barometric Pressure : 102.13 kPa

Calibration Technician : Peter Elters
Calibration Date : 03 Jul 2024
Secondary Check: Cooper Sallway
Report Issue Date : 9 Jul 2024

Approved Signatory : Ken Williams

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.06	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.10 dB*	*Temperature*	*±0.1 °C*
Frequency	*±0.07 %*	*Relative Humidity*	*±1.9 %*
Distortion	*±0.20 %*	*Barometric Pressure*	*±0.11 kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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Sound Calibrator
IEC 60942:2017
Calibration Test Report

Calibration Number C24511

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34524157

Atmospheric Conditions
Ambient Temperature : 20.9 °C
Relative Humidity : 50.4 %
Barometric Pressure : 102.13 kPa

Calibration Technician : Peter Elters **Secondary Check:** Cooper Sallway
Calibration Date : 03 Jul 2024 **Report Issue Date :** 9 Jul 2024

Approved Signatory : Ken Williams

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.10 dB*	*Temperature*	*±0.1 °C*
Frequency	*±0.07 %*	*Relative Humidity*	*±1.9 %*
Distortion	*±0.20 %*	*Barometric Pressure*	*±0.11 kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

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Sound Level Meter
IEC 61672-3:2013
Calibration Certificate

Calibration Number C24536

Client Details	Gamuda Australia 100 Miller Street North Sydney NSW, 2060
Equipment Tested/ Model Number :	NL-52
Instrument Serial Number :	01010866
Microphone Serial Number :	21990
Pre-amplifier Serial Number :	11514
Firmware Version :	v2.0

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	24.4 °C	**Ambient Temperature :**	24.7 °C
Relative Humidity :	46.3 %	**Relative Humidity :**	46.8 %
Barometric Pressure :	100.94 kPa	**Barometric Pressure :**	100.88 kPa

Calibration Technician :	Peter Elters	**Secondary Check:**	Cooper Sallway
Calibration Date :	10 Jul 2024	**Report Issue Date :**	10 Jul 2024

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

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NATA WORLD RECOGNISED ACCREDITATION

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Sound Level Meter
IEC 61672-3:2013
Calibration Test Report

Calibration Number C24536

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : NL-52
Instrument Serial Number : 01010866
Microphone Serial Number : 21990
Pre-amplifier Serial Number : 11514
Firmware Version : v2.0

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	24.4 °C	**Ambient Temperature :**	24.7 °C
Relative Humidity :	46.3 %	**Relative Humidity :**	46.8 %
Barometric Pressure :	100.94 kPa	**Barometric Pressure :**	100.88 kPa

Calibration Technician :	Peter Elters	**Secondary Check:**	Cooper Sallway
Calibration Date :	10 Jul 2024	**Report Issue Date :**	10 Jul 2024

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*N/A*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13 dB*	*Temperature*	*±0.1 °C*
1kHz	*±0.13 dB*	*Relative Humidity*	*±1.9 %*
8kHz	*±0.14 dB*	*Barometric Pressure*	*±0.11 kPa*
Electrical Tests	*±0.13 dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

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Sound Calibrator

IEC 60942:2017

Calibration Certificate

Calibration Number C24537

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34524759

Atmospheric Conditions
Ambient Temperature : 24.8 °C
Relative Humidity : 46.8 %
Barometric Pressure : 100.87 kPa

Calibration Technician : Peter Elters
Calibration Date : 10 Jul 2024
Secondary Check: Cooper Sallway
Report Issue Date : 10 Jul 2024
Approved Signatory : Ken Williams

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.08	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.10 dB*	*Temperature*	*±0.1 °C*
Frequency	*±0.07 %*	*Relative Humidity*	*±1.9 %*
Distortion	*±0.20 %*	*Barometric Pressure*	*±0.11 kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA
WORLD RECOGNISED ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
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Sound Calibrator
IEC 60942:2017
Calibration Test Report

Calibration Number C24537

Client Details Gamuda Australia
100 Miller Street
North Sydney NSW, 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34524759

Atmospheric Conditions
Ambient Temperature : 24.8 °C
Relative Humidity : 46.8 %
Barometric Pressure : 100.87 kPa

Calibration Technician : Peter Elters
Calibration Date : 10 Jul 2024
Secondary Check: Cooper Sallway
Report Issue Date : 10 Jul 2024

Approved Signatory : Ken Williams

Characteristic Tested	**Result**
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.10 dB*	*Temperature*	*±0.1 °C*
Frequency	*±0.07 %*	*Relative Humidity*	*±1.9 %*
Distortion	*±0.20 %*	*Barometric Pressure*	*±0.11 kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

Calibration report

Certificate of Calibration

Certificate number: 20240718707366738365

Manufacturer	Omnidots B.V.
Location of calibration	Position Partners 92 Wetherill Street North Silverwater NSW 2128
Model	SWARM V2.2cw-G
Name	FIBISA
Date of calibration*	2024-07-18 (YYYY-MM-DD)
Temperature (°C)	20±3°C
Humidity (% RH)	60±30%
Signature:	

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Calibration report

Certificate of Calibration

Certificate number: 20240718707366738365

Calibration procedure

The Swarms are mounted on the calibration mounts. The shaker then targets a speed and keeps the same power for 60 seconds. Over this time measurement samples are logged and compared to the reference sensor.

Calibration report

Certificate of Calibration

Certificate number: 20240718707366738365

Calibration equipment used

Model	Serial number	Description	Calibration certificate
OMNSH01	0006	Horizontal shaker	n.a.
OMNMO01	0016	Calibration mount	n.a.
OMNMO01	0017	Calibration mount	n.a.
OMNMO01	0018	Calibration mount	n.a.
OMNDR01	0006	Shaker driver	n.a.
Epson A352AD	00001382	Reference sensor	2020-11-24
Swarm	ZUHOZO	Reference check	2022-07-08
n.a.	aea348a	Calibration software	n.a.

Calibration report

Certificate of Calibration

Certificate number: 20240718707366738365

Calibration results after measurement

Axis	Frequency	Reference measurement Vref (Vref*weighting(f))	Excitation measurement of the device Vmeas	Deviation 100 X (Vmeas-Vref)/ Vref	Result
X	16.0	9.62	9.58	-0.41	PASS
Y	16.0	9.20	9.19	-0.10	PASS
Z	16.0	9.82	9.81	-0.12	PASS

Name	FIBISA
Date of calibration*	2024-07-18 (YYYY-MM-DD)

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Calibration report

Certificate of Calibration

Certificate number: 20240725716971658769

Manufacturer	Omnidots B.V.
Location of calibration	Position Partners 92 Wetherill Street North Silverwater NSW 2128
Model	SWARM V2.2cw-G
Name	GEGAWE
Date of calibration*	2024-07-25 (YYYY-MM-DD)
Temperature (°C)	20±3°C
Humidity (% RH)	60±30%
Signature:	

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Calibration report

Certificate of Calibration

Certificate number: 20240725716971658769

Calibration procedure

The Swarms are mounted on the calibration mounts. The shaker then targets a speed and keeps the same power for 60 seconds. Over this time measurement samples are logged and compared to the reference sensor.

Calibration report

Certificate of Calibration

Certificate number: 20240725716971658769

Calibration equipment used

Model	Serial number	Description	Calibration certificate
OMNSH01	0006	Horizontal shaker	n.a.
OMNMO01	0016	Calibration mount	n.a.
OMNMO01	0017	Calibration mount	n.a.
OMNMO01	0018	Calibration mount	n.a.
OMNDR01	0006	Shaker driver	n.a.
Epson A352AD	00001382	Reference sensor	2020-11-24
Swarm	ZUHOZO	Reference check	2022-07-08
n.a.	aea348a	Calibration software	n.a.

Calibration report

Certificate of Calibration

Certificate number: 20240725716971658769

Calibration results after measurement

Axis	Frequency	Reference measurement Vref (Vref*weighting(f))	Excitation measurement of the device Vmeas	Deviation 100 X (Vmeas-Vref)/ Vref	Result
X	16.0	9.51	9.42	-0.88	PASS
Y	16.0	9.45	9.39	-0.71	PASS
Z	16.0	9.42	9.29	-1.34	PASS

Name	GEGAWE
Date of calibration*	2024-07-25 (YYYY-MM-DD)

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Calibration report

Certificate of Calibration

Certificate number: 20240603766967738969

Manufacturer	Omnidots B.V.
Location of calibration	Position Partners 92 Wetherill Street North Silverwater NSW 2128
Model	SWARM V2.2cw-G
Name	LECIYE
Date of calibration*	2024-06-03 (YYYY-MM-DD)
Temperature (°C)	20±3°C
Humidity (% RH)	60±30%
Signature:	

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Calibration report

Certificate of Calibration

Certificate number: 20240603766967738969

Calibration procedure

The Swarms are mounted on the calibration mounts. The shaker then targets a speed and keeps the same power for 60 seconds. Over this time measurement samples are logged and compared to the reference sensor.

Calibration report

Certificate of Calibration

Certificate number: 20240603766967738969

Calibration equipment used

Model	Serial number	Description	Calibration certificate
OMNSH01	0006	Horizontal shaker	n.a.
OMNMO01	0016	Calibration mount	n.a.
OMNMO01	0017	Calibration mount	n.a.
OMNMO01	0018	Calibration mount	n.a.
OMNDR01	0006	Shaker driver	n.a.
Epson A352AD	00001382	Reference sensor	2020-11-24
Swarm	ZUHOZO	Reference check	2022-07-08
n.a.	aea348a	Calibration software	n.a.

Calibration report

Certificate of Calibration

Certificate number: 20240603766967738969

Calibration results after measurement

Axis	Frequency	Reference measurement Vref (Vref*weighting(f))	Excitation measurement of the device Vmeas	Deviation 100 X (Vmeas-Vref)/ Vref	Result
X	16.0	9.42	9.32	-1.02	PASS
Y	16.0	9.40	9.32	-0.85	PASS
Z	16.0	9.38	9.28	-1.15	PASS

Name: LECIYE

Date of calibration*: 2024-06-03 (YYYY-MM-DD)

* Recommended calibration interval is 24 months from first day of use, unless otherwise required by local standards and/or local laws.

Hexanode Calibration Certificate

27 Oct 2023

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000025	25 Mar 2022	3.044515

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

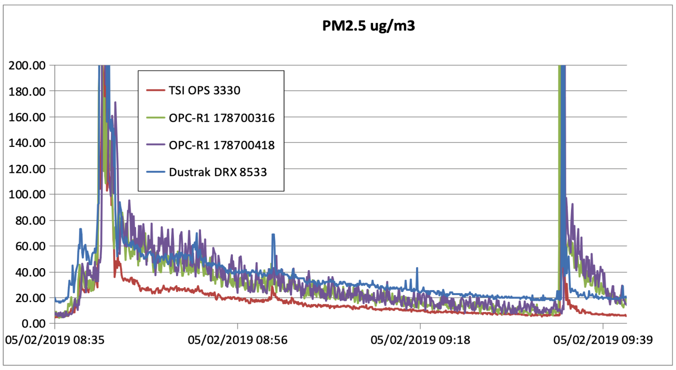
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

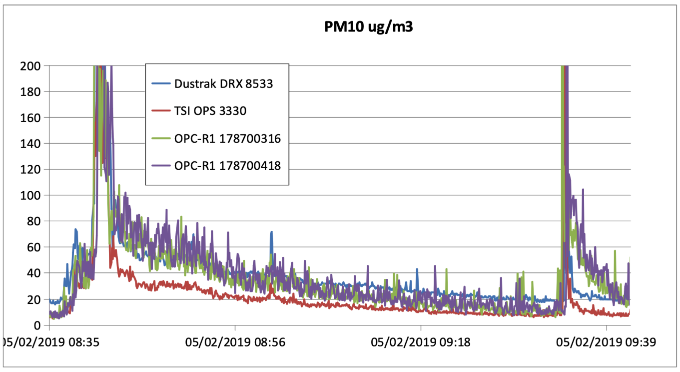
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

17 Nov 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 104 Commonwealth Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000236	24 Oct 2024	2.863278

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

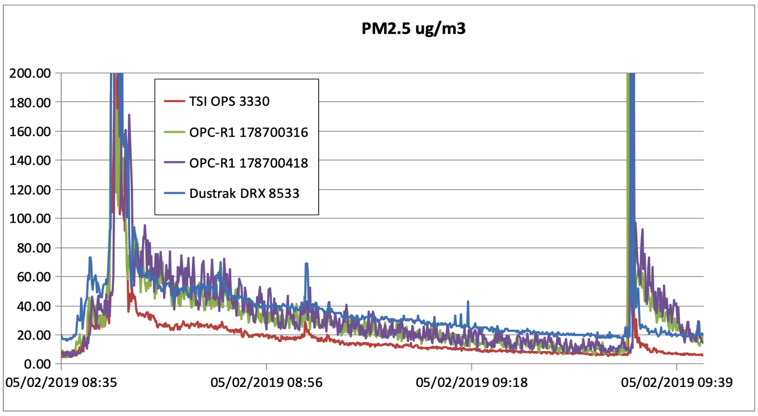
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

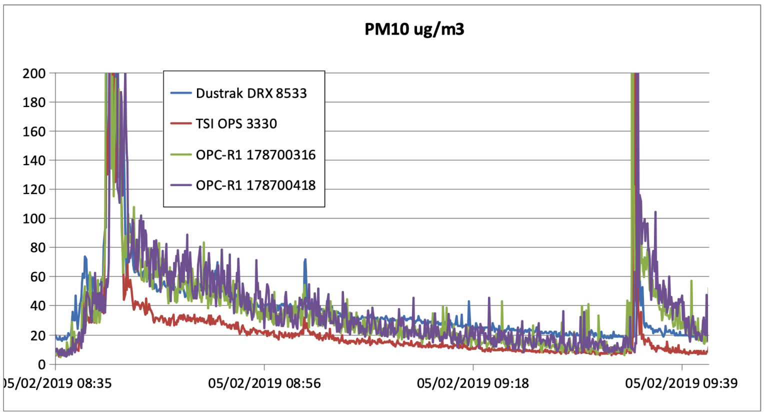
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

24 Jun 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000330	13 Jun 2024	2.842653

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

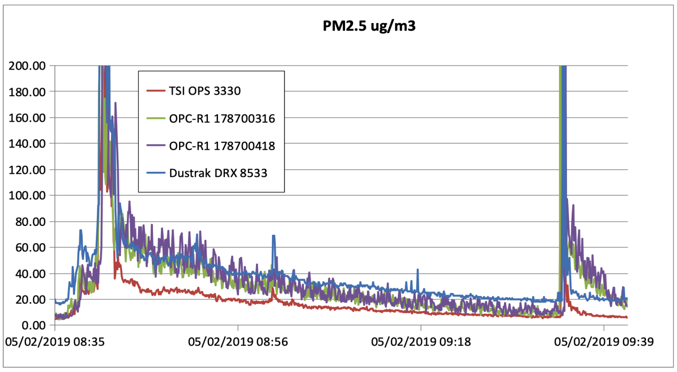
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

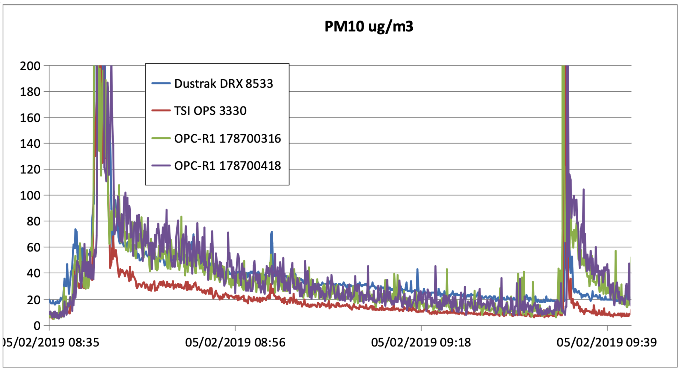
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

22 Jan 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000420	12 Dec 2023	2.880883

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

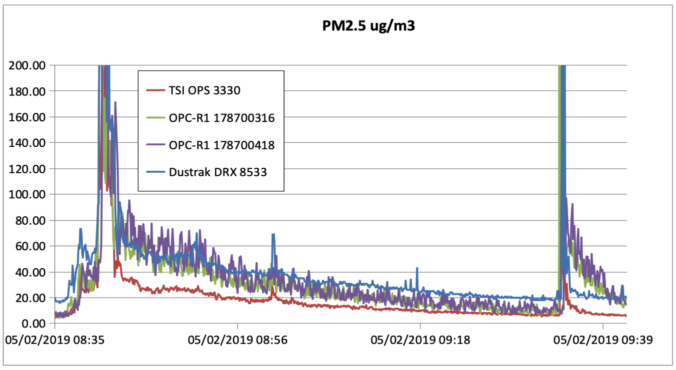
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

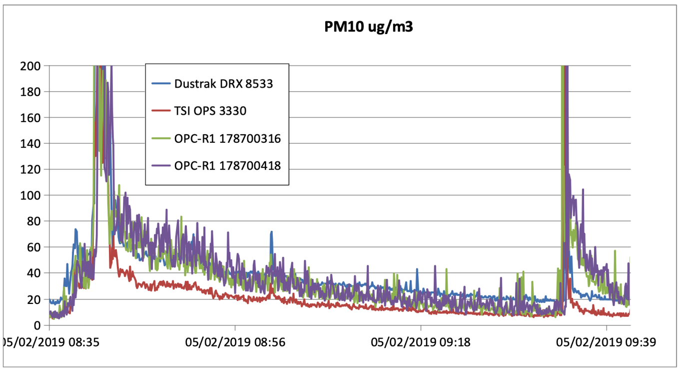
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

04 Dec 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 104 Commonwealth Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000522	19 Aug 2024	3.145501

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

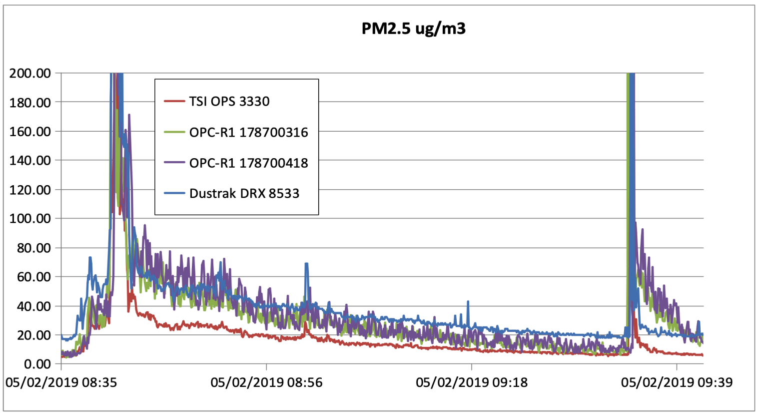
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

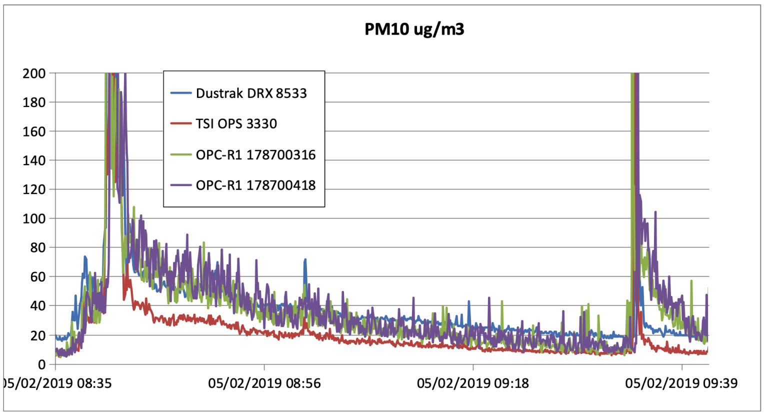
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	μm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

18 Jul 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000567	11 Jun 2024	2.843902

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

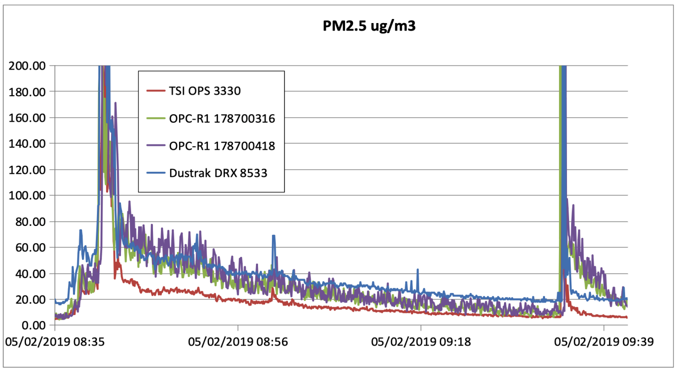
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

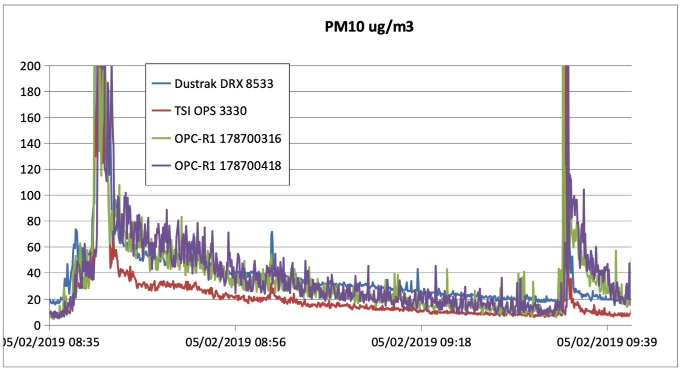
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	μm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

18 Jul 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000575	11 Jun 2024	2.885719

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

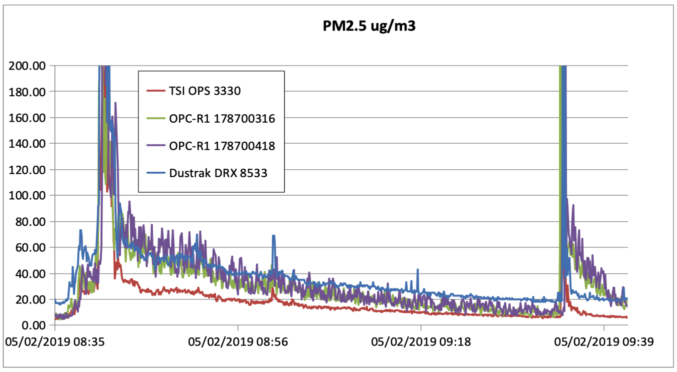
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

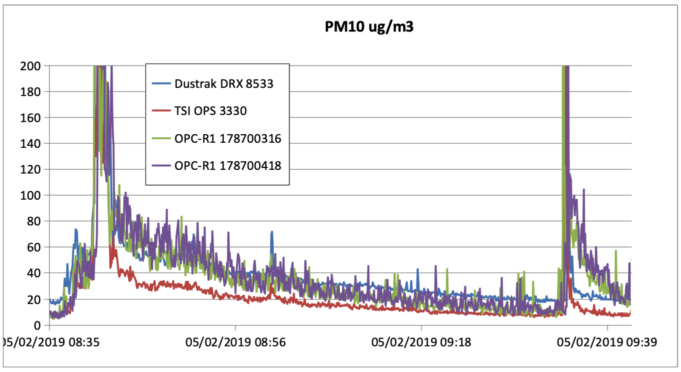
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

18 Jul 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000596	11 Jun 2024	2.871907

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

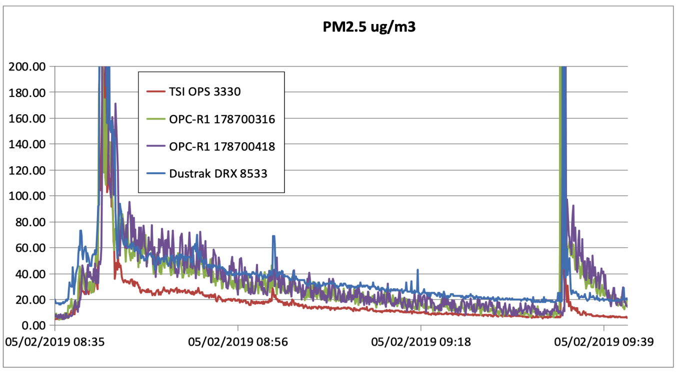
The SiteHive Hexanode uses innovative digital MEMS microphones, and as such cannot achieve full pattern approval in line with international standard IEC 61672, which is written for analogue condenser microphones. However, the SiteHive Hexanode sound level meter has been rigorously tested by the the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources responsible for providing world-class measurement services to support a fair, safe, healthy and competitive Australia. The National Measurement Institute's (NMI) acoustic, ultrasound and vibration measurement services are the most accurate in Australia, and include providing the certification for NATA (National Association of Testing Authorities) testing facilities, who provide class certification for noise meters. NMI undertook all of the possible tests outlined in IEC 61672-2, with the Hexanode passing all precision requirements within the criteria of a class 2 device.

Dust

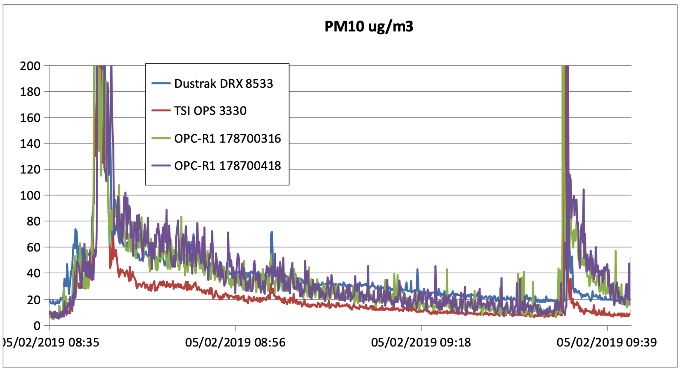
The Hexanode utilises the Alphasense R2 Optical Particle Sensor, to provide real-time dust measurements. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available here.

Particle range	μm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

07 Aug 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 2 Foveaux Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000615	03 Jun 2024	3.408878

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

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Dust

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Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
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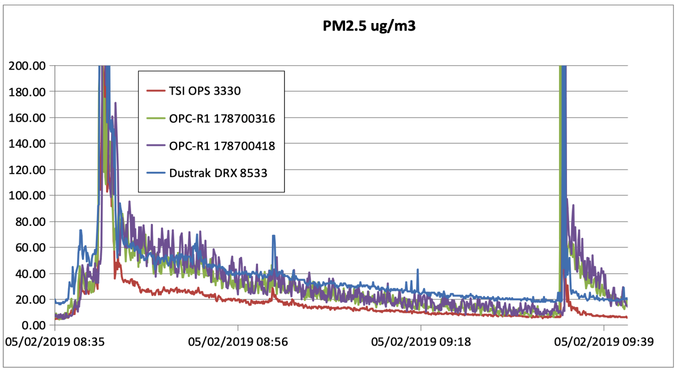
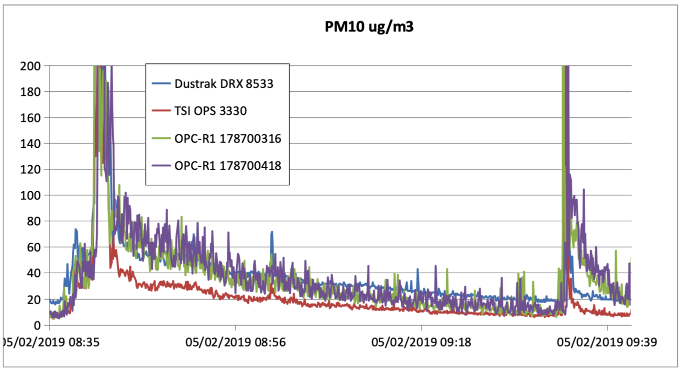


Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

04 Dec 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Noise

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 104 Commonwealth Street, Surry Hills, NSW, 2010.

Serial Number	Calibration Date	Calibration Value
HEX-000725	24 Oct 2024	2.903327

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source

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Dust

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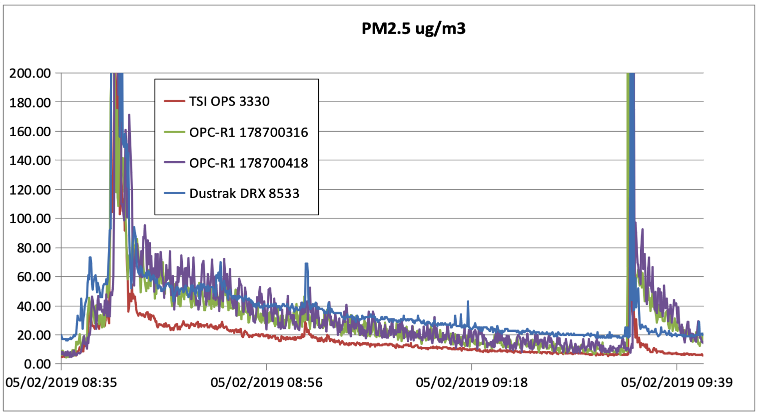
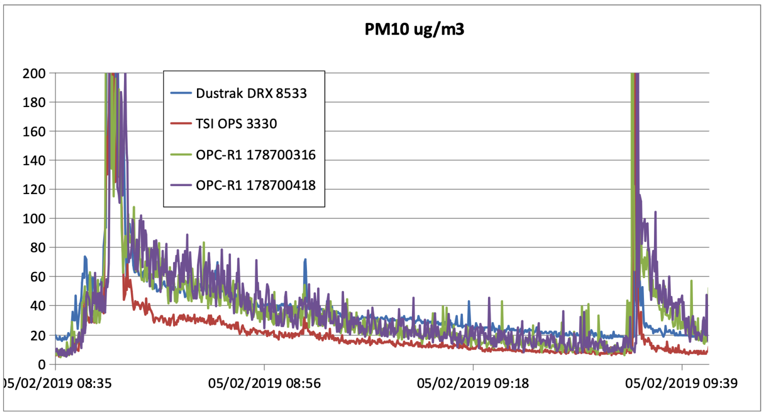
Particle range	μm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 10^6 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate

SiteHive

15 Feb 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000007	04 Jul 2023	04 Jul 2025

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	63	25.7	25.68	Pass (0)
y	63	25.81	25.73	Pass (0)
z	63	25.78	25.73	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor	ENDEVCO 770F-10-U-120	10047	15 Mar 2018
Shaker	LDS V455	93880/1	
Driver	LDS PA1000L CE	N176	
Reference Check	BK 4294	3369320	12 May 2023
Device Mount	8426686-001		

Hexanode Calibration Certificate

21 Aug 2023

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000010	04 Jul 2023	04 Jul 2025

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	63	25.71	25.73	Pass (0)
y	63	25.78	25.64	Pass (0)
z	63	25.91	25.78	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor	ENDEVCO 770F-10-U-120	10047	15 Mar 2018
Shaker	LDS V455	93880/1	
Driver	LDS PA1000L CE	N176	
Reference Check	BK 4294	3369320	12 May 2023
Device Mount	8426686-001		

Hexanode Calibration Certificate

03 Aug 2023

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000024	05 Jul 2023	05 Jul 2025

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	63	25.65	25.49	Pass (0)
y	63	25.45	25.40	Pass (0)
z	63	25.37	25.36	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor	ENDEVCO 770F-10-U-120	10047	15 Mar 2018
Shaker	LDS V455	93880/1	
Driver	LDS PA1000L CE	N176	
Reference Check	BK 4294	3369320	12 May 2023
Device Mount	8426686-001		

Hexanode Calibration Certificate

14 Sep 2023

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000030	05 Jul 2023	05 Jul 2025

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	63	25.99	25.86	Pass (0)
y	63	25.91	25.82	Pass (0)
z	63	25.78	25.78	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor	ENDEVCO 770F-10-U-120	10047	15 Mar 2018
Shaker	LDS V455	93880/1	
Driver	LDS PA1000L CE	N176	
Reference Check	BK 4294	3369320	12 May 2023
Device Mount	8426686-001		

Hexanode Calibration Certificate

SiteHive

17 Sep 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000057	07 Sep 2023	07 Sep 2025

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	63	25.78	25.8	Pass (0)
y	63	25.74	25.74	Pass (0)
z	63	25.47	25.47	Pass (0)

Calibration conditions

Temperature	26 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor	ENDEVCO 770F-10-U-120	10047	15 Mar 2018
Shaker	LDS V455	93880/1	
Driver	LDS PA1000L CE	N176	
Reference Check	BK 4294	3369320	12 May 2023
Device Mount	8426686-001		

Hexanode Calibration Certificate

26 Oct 2023

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000072	07 Sep 2023	07 Sep 2025

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	63	25.57	25.59	Pass (0)
y	63	25.59	25.62	Pass (0)
z	63	25.53	25.51	Pass (0)

Calibration conditions

Temperature	25 °C
Humidity	44 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor	ENDEVCO 770F-10-U-120	10047	15 Mar 2018
Shaker	LDS V455	93880/1	
Driver	LDS PA1000L CE	N176	
Reference Check	BK 4294	3369320	12 May 2023
Device Mount	8426686-001		

Hexanode Calibration Certificate

31 Oct 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000124	05 Mar 2024	05 Mar 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	24.61	24.6	Pass (0)
y	31.5	24.64	24.64	Pass (0)
z	31.5	25.05	25.04	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00003889	13 Mar 2023
Reference Sensor 2	M-A352AD10	00005090	14 Jan 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

27 Sep 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000126	06 Mar 2024	06 Mar 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	24.92	24.92	Pass (0)
y	31.5	24.72	24.72	Pass (0)
z	31.5	25.36	25.34	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00003889	13 Mar 2023
Reference Sensor 2	M-A352AD10	00005090	14 Jan 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

24 Nov 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000159	18 Oct 2024	18 Oct 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	24.73	24.77	Pass (0)
y	31.5	25.02	25.07	Pass (0)
z	31.5	25.17	25.22	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00005379	23 Sep 2024
Reference Sensor 2	M-A352AD10	00005090	23 Sep 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

SiteHive

21 May 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000182	14 May 2024	14 May 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	24.91	24.9	Pass (0)
y	31.5	25.2	25.21	Pass (0)
z	31.5	25.42	25.4	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00003889	13 Mar 2023
Reference Sensor 2	M-A352AD10	00005090	14 Jan 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

SiteHive

01 Aug 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000197	01 Jul 2024	01 Jul 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	24.57	24.61	Pass (0)
y	31.5	24.68	24.72	Pass (0)
z	31.5	24.83	24.87	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00005379	14 Jan 2024
Reference Sensor 2	M-A352AD10	00005090	14 Jan 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

01 Aug 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000206	04 Jul 2024	04 Jul 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	25.56	25.6	Pass (0)
y	31.5	25.72	25.77	Pass (0)
z	31.5	25.81	25.85	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00005379	14 Jan 2024
Reference Sensor 2	M-A352AD10	00005090	14 Jan 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

SiteHive

06 Aug 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000208	04 Jul 2024	04 Jul 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	25.53	25.58	Pass (0)
y	31.5	25.55	25.6	Pass (0)
z	31.5	26	26.05	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00005379	14 Jan 2024
Reference Sensor 2	M-A352AD10	00005090	14 Jan 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Hexanode Calibration Certificate

02 Dec 2024

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

Vibration

The vibration device is calibrated by SiteHive through comparison to a reference transducer, in line with testing protocols outlined in ISO 16063-21:2003.

Serial Number	Calibration Date	Calibration Due
VIB-000319	18 Nov 2024	18 Nov 2026

Result

Axis	Frequency (Hz)	Measured value (mm/s)	Reference value (mm/s)	Result (% difference to reference)
x	31.5	24.94	24.98	Pass (0)
y	31.5	25.36	25.41	Pass (0)
z	31.5	25.31	25.35	Pass (0)

Calibration conditions

Temperature	23 °C
Humidity	52 % RH
Mounting surface	Aluminium

Calibration equipment

Equipment	Model	Serial number	Calibration certificate
Reference Sensor 1	M-A352AD10	00005379	23 Sep 2024
Reference Sensor 2	M-A352AD10	00005090	23 Sep 2024
Shaker	AVM90-HF-10-0.5	AVM-34858	
Driver	AGD200-ET-2D02	AGD200-00122310916	
Reference Check			
Device Mount	8428544-001		

Attachment B – Surface Water Quality Monitoring Report

Surface Water Quality Monitoring Report No. 5

Sydney Metro West – Western Tunnelling Package

August 2024 to January 2025.

ISSUE DATE: MARCH 2025

Document Details

Document Title	**Surface Water Quality Monitoring Report No. 5**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Document Reference No.	**SMWSTWTP-GLO-1NL-EN-RPT-000015**
Principal Contractor	**Gamuda Australia**
ABN	**36 636 433 522**
Project Address	**L8, 60 Station Street, Parramatta NSW 2150**

Revision History

Revision	Date	Description of changes	Prepared by	Reviewed by
A	05/03/2025	First iteration of the Report	Lochlan Browne, Hala Abdelhadi	Hussain Nilar
B	28/03/2025	Update in response to SM Comments	Hussain Nilar	Hussain Nilar

TABLE OF CONTENTS

Terms and Definitions

Term	Definition
AFJV	Acciona Ferrovial Joint Venture
ANZG	Australian and New-Zealand Guidelines 2018
ANZECC	Australian and New Zealand Environment and Conservation Council Guidelines for Fresh and Marine Water Quality (2000)
BOM	Bureau of Meteorology
CBD	City Business District
CEMF	Construction Environmental Management Framework
CMR	Construction Monitoring Report
CSSI	Critical State Significant Infrastructure
DGV	Default Guideline Values
DPHI	Department of Planning Housing and Infrastructure (NSW) (Formerly DPE)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (NSW)
D-Wall	Diaphragm Wall
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPL	Environment Protection License
ER	Environmental Representative
GLC	Gamuda Australia – Laing O'Rourke Consortium
LEM	Lining Erection Machine
MCoA	Ministers' Condition of Approval (SSI 10038)
MSF	Maintenance and Stabling Facility
NSW	New South Wales
NATA	National Association of Testing Authorities
PASS	Potential Acid Sulphate Soil
PFAS	Per- and polyfluoroalkyl substances
QA	Quality Assurance
QC	Quality Control
REMM	Revised Environmental Mitigation Measures
SM	Sydney Metro
SMW	Sydney Metro West
SOP	Sydney Olympic Park
SSI	State Significant Infrastructure
SWQMoP	Surface Water Quality Monitoring Program
SWMP	Soil and Water Management Plan
TBM	Tunnel Boring Machine
WPIA	Water Pollution Impact Assessment
WQO	Water Quality Objectives (NSW)
WTP	Sydney Metro West Western Tunnelling Package works (The Project)

1 INTRODUCTION

1.1 Project description

Sydney Metro West (SMW) is a new underground railway connecting Greater Parramatta and the Sydney City Business District (CBD). It will provide fast connections between greater Sydney's two major business centres as well as providing better access to the growing business and entertainment precincts in Olympic Park and Pyrmont, the health and medical research hub at Westmead and the future business and tourism site at The Bays.

An Environmental Impact Statement (EIS) (Jacobs/Arcadis, 2020) for the Concept and Stage 1 assessed the surface water quality impacts in response to the Secretary Environmental Assessment Requirements issued by the Department of Planning Housing and Infrastructure (DPHI). The Project was approved on 11 March 2021 (SSI 10038).

Sydney Metro is delivering the Sydney Metro West project via several different packages, including the Western Tunnelling Package (WTP, the Project). Figure 1 is an overview map outlining the extent of the Project.

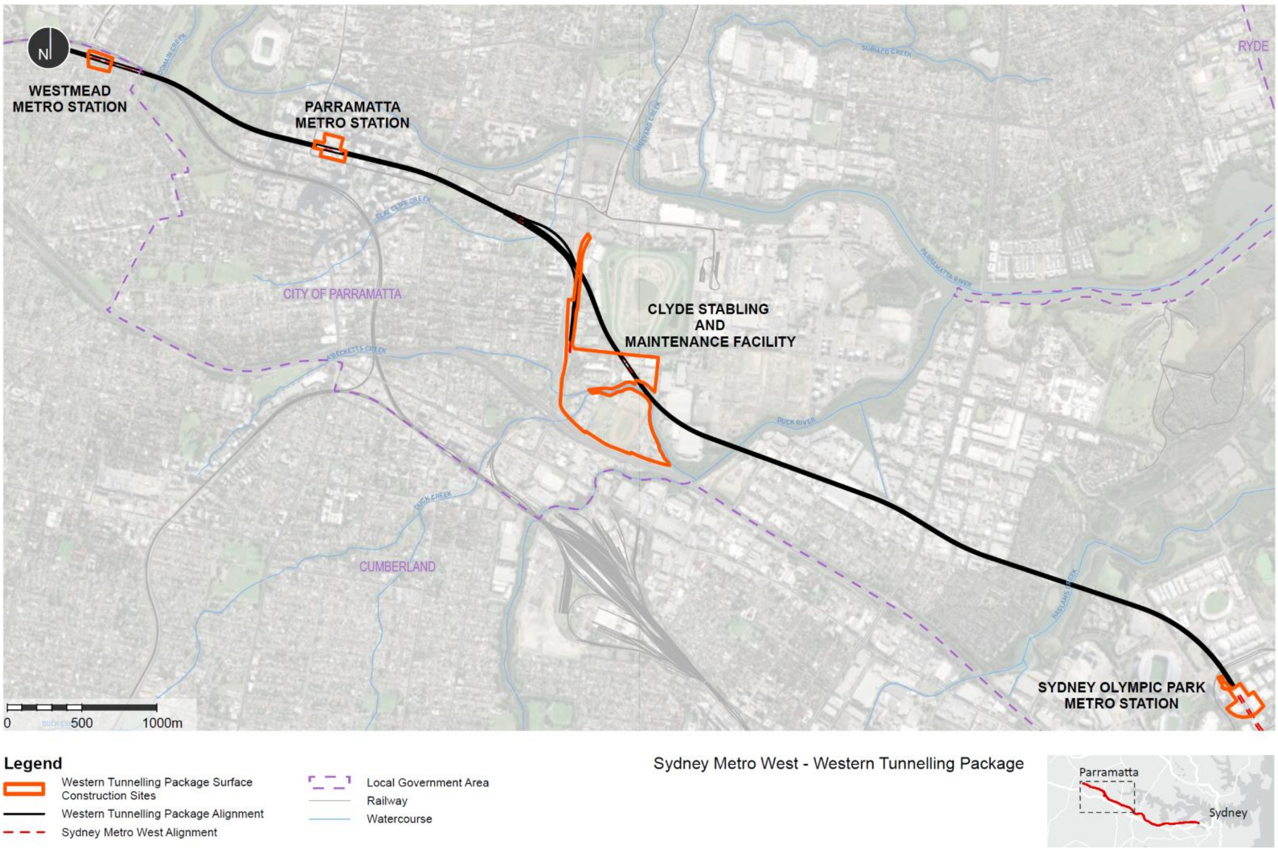


***Figure 1**: WTP Project Map Overview.*

1.2 Project requirements

The Surface Water Quality Monitoring Program (SWQMoP) for the Project (SMWSTWTP-GLO-1NL-EN-PRG-000001) was developed to meet the requirements of Ministers Condition of Approval (MCoA) C14 and Revised Environmental Mitigation Measures (REMM) SSWQ6. The SWQMoP sets out the requirement to develop and issue a Surface Water Quality Monitoring Report (this report), collating surface water quality monitoring data. This report collates surface water monitoring undertaken during the fifth six-month period of construction, from the 20th of July 2024 to the 19th of January 2025.

The Project requirements relevant to the preparation of this Monitoring Report are identified in **Table 1**. A document reference is also included to indicate where the requirement is addressed in this Monitoring Report or other documents. Additional monitoring requirements are outlined in the SWQMoP and surface water quality project requirements are outlined in the Soil and Water Management Plan (SWMP).

Table 1: *Monitoring Report Compliance Matrix.*

Reference	Requirement	Document Reference
MCoA C23	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	This document
MCoA D117	Stage 1 of the CSSI must be designed and constructed so as to maintain the NSW Water Quality Objectives (NSW WQO) where they are being achieved as at the date of this approval, and contribute towards achievement of the NSW WQO over time where they are not being achieved as at the date of this approval, unless an Environment Protection License (EPL) in force in respect of the CSSI contains different requirements in relation to the NSW WQO.	This document
CEMF 12.2 (e)	iii. All water will be tested (and treated if required) prior to discharge from the site in order to determine compliance with relevant approvals and licence requirements. No water will be discharged from the site without written approval of the Contractor's Environmental Manager (or delegate). This is to form a Hold Point.	This document
REMM SWQW6	A surface water monitoring program would be implemented to observe any changes in surface water quality that may be attributable to Stage 1 and inform appropriate management responses. The program would be developed in consultation with the (Environment Protection Authority) EPA and relevant Councils. The program would consider monitoring being undertaken as part of other infrastructure projects such as the WestConnex M4 East monitoring. Monitoring would occur during pre-construction and during construction at all waterways with the potential to be impacted. Monitoring sites could be located upstream and downstream of the potential discharges and would include sampling for key indicators of concern.	Section 3.4, 3.6 and 4
SWQMoP	During construction, surface water quality data will be collected, tabulated and assessed against baseline conditions and performance criteria	This report

Reference	Requirement	Document Reference
SWQMoP	The six-monthly monitoring reports will be submitted to the Planning Secretary, the (Environmental Representative) ER, EPA and Sydney Water[1] for information within 60 business days of the reporting period unless otherwise agreed with the Planning Secretary	Section 1.3

1 – The SWQ Monitoring Report need only be issued to Sydney Water where Sydney Water assets are impacted.

1.3 Endorsement and publication

In accordance with the SWQMoP, this report will be issued for information to the Planning Secretary of the Department of Planning Housing and Infrastructure (NSW) (DPHI), the Environmental Representative (ER), Environment Protection Authority (EPA) and Sydney Water within 60 business days of the reporting period.

In line with MCoA B11(e), a copy of this SWQ Construction Monitoring Report will be consolidated with Gamuda Australia - Laing O'Rourke Consortium's (GLC) other Construction Monitoring Reports (CMR's) and published on the project website within a week following submission of the last Construction Monitoring Report to DPHI.

2 DESCRIPTION OF WORKS

2.1 Environment setting

The Project is located within the upper estuary of the Parramatta River Catchment, one of the main tributaries of Sydney Harbour. The Parramatta River catchment and Sydney Harbour includes the Sydney City Business District (CBD) and significant commercial districts of North Sydney and Parramatta. The catchment is highly urbanised and altered from its natural state, with pockets of open spaces and parkland. Most of the catchment is estuarine, up to the tidal limit at Charles Street weir in Parramatta, with freshwater watercourses in the upper catchments of the tributaries of Parramatta River.

Chapter 19 of the Sydney Metro West EIS identifies the water courses listed in **Table 2** as being relevant to the WTP's four key surface construction sites.

Table 2: *Water Courses relevant to the Sydney Metro West – Western Tunnel Package.*

Stage 1 Construction Site	Watercourse	Receiving Waters
Westmead Metro Station	• Domain Creek	• Parramatta River
Parramatta Metro Station	• Parramatta River • Clay Cliff Creek	• Parramatta River
Clyde Maintenance and Stabling Facility (MSF)[1]	• Duck River • Duck Creek • A'Becketts Creek	• Parramatta River
Sydney Olympic Park (SOP)[2]	• Haslams Creek	• Parramatta River

[1] The Clyde Maintenance and Stabling Facility (MSF) consists of three sub-sites, specifically the Clyde Maintenance Facility, Clyde Dive Site, and the Rose Hill Site.
[2] Water associated with GLC activities (including surface water and any residual groundwater seepage) is returned to Rosehill's water treatment plant for treatment and discharge.

Domain Creek is located downstream of the Westmead Site and is the first point of contact for water which drains into the local stormwater system. Surface water from around the perimeter of the Westmead site is collected in protected stormwater pits and which flow into the local stormwater system eventually migrating into Domain Creek.

During the reporting period, the water treatment plant at the Westmead site was operational for on-site reuse only. Water collected from activities at the Westmead site is treated through the water treatment plant and re-used on-site for daily site activities including plant and equipment washdown, concrete and grouting works, and dust suppression. During the reporting period no water from the Westmead water treatment plant was discharged to the local stormwater system.

Surface water from within the vicinity of the Parramatta site drains into the local stormwater system which drains directly to the Parramatta River, upstream of the Charles Street Weir. Although the EIS states that Clay Cliff Creek is relevant to the Parramatta site, no water from the project drains into this creek.

During the reporting period, the Parramatta construction water treatment plant was operational. Water collected from the Parramatta site is treated through the water treatment plant and either beneficially re-used on-site to support construction activities or is discharged to the environment via the local stormwater system. When discharge from the Parramatta construction water treatment plant occurs, treated water is discharged to the Parramatta River downstream of the Charles Street Weir.

Water collected from the activities at Clyde Maintenance and Stabling Facility (MSF) is treated and discharged through the Rosehill water treatment plant directly into Duck River, avoiding the smaller creeks, Duck Creek and A'Becketts Creek. Surface water runoff captured on site is managed via a series of sediment and erosion controls, with captured site water being treated and discharge via the WTP. The implementation of these erosion and sediment controls minimises the risk of site water entering Duck Creek and A'Beckett's creek catchments, which are both tributaries of Duck River and later Parramatta river.

Throughout the reporting period, surface water runoff from SOP was diverted to WTP tunnels and routed back to the Rosehill water treatment plant for treatment and discharge into Duck River. No runoff from within the SOP box associated with Acciona Ferrovial Joint Venture (AFJV) runoff from within the SOP box was treated by GLC during this period.

During this reporting period, groundwater continued to be intersected in the shaft excavation at the Clyde Dive Site in both the Dive excavation works and the mined tunnels, the Rosehill box and Tunnel Boring Machine (TBM) tunnels, as well as within the Westmead box, cavern and stub tunnel excavations. Negligible amounts of groundwater were encountered at the SOP station box on account of the site being completely excavated and sealed prior to GLCs presence on site in late 2023. Minor amounts of groundwater were also intercepted in the Parramatta station box excavation.

Throughout the reporting period, all groundwater was directed to either the Rosehill Permanent water treatment plant, or Parramatta Construction water treatment plant for treatment and re-used on site or discharged via the licensed discharge points at Duck River (EPL discharge Point 4) and Parramatta River (EPL discharge Point 5). In the case of SOP, groundwater was redirected to Rosehill's water treatment plant for treatment and discharge. During the reporting period, there were instances where the Water Treatment Plants were not discharging to the environment due to maintenance, or failed treatment rounds. In these instances, water was taken off-site to be disposed at a licenced facility or re-used on site to support construction where on-site re-use requirements are reduced.

2.2 Project activities undertaken during the reporting.

Construction activities undertaken during the reporting period are summarised in **Table 3** below. As part of the Project, three (3) water treatment plants are commissioned for use as outlined in **Table 4**. Only two (2) Water Treatment Plants however discharged water offsite during the reporting period. Parramatta and Rosehill discharged approximately 8.7ML and 242ML of water to the EPL discharge points at Parramatta River and Duck Creek, respectively.

***Table 3:** Construction activities undertaken during the reporting period.*

SITE	CONSTRUCTION ACTIVTIES	OFFSITE DISCHARGE
Westmead	• Box excavation (with hydraulic hammers). • Box excavation (with acoustic shed/cover). • Box excavation – rock-bolting/shotcrete (within acoustic shed/cover). • Mined tunnel excavation. • Delivery and off hire of equipment. • Off-site Spoil haulage. • Gantry crane operation. • Installation of monitoring equipment. • General operation of ancillary facility. • Minor services relocation along Hawksbury Road. • Waterproofing. • Form Reo Pour (FRP) of permanent tunnel lining. • Euroform assembly. • Removal of concrete divider (for stockpiling) in Acoustic Shed	No
Parramatta	• Archaeological clearance. • Removal and/or relocating utilities. • Establishing and demolition concrete slabs or piling platforms. • Station box pile break back/trim. • FRP – concrete works. • Box excavation ground support – internal struts & waler Installation. • Box excavation to ~26m. • Off-site Spoil haulage • Delivery of equipment/general truck movements. • General operation of ancillary facilities. • Establishment of internal haul roads and station box bridge. • Nozzle construction works (fissure grouting, canopy tubes installation, concrete D-wall removal, ground support and excavation, tunnel spoil loadout, and rock bolting) • Tunnel invert concreting works. • Installation of monitoring equipment. • Station box maintenance works. • Water management/ dewatering.	Yes, discharge to EPL point five (Parramatta River)

SITE	CONSTRUCTION ACTIVTIES	OFFSITE DISCHARGE
Clyde Dive	• Final excavation and construction of the decline structure. • Junction caverns excavation and waterproofing. • FRP for deflection wall and dive structure, tunnel inverts, caverns and arches. • General operation of ancillary facilities. • Spur tunnel excavation, waterproofing, and lining. • Transport of excavated material and concrete waste. • Minor utilities relocations. • HV protection slab investigation. • Lining Erection Machine (LEM) assembly and operation. • LEM grout plant set up and operation, segment storage and delivery.	Yes, transfer to Rosehill Water Treatment Plant
Clyde MSF	• Excavation of the utility service corridor. • Remediation of contaminated hotspots. • Potential Acid Sulphate Soil (PASS) treatment. • Management of erosion and sediment controls including dewatering system. • Bulk earthworks. • General operation of ancillary facilities. • Utility adjustment works. • Construction of the bridging structure abutments. • Construction of retaining wall structures. • Construction of water conveyance structures. • Construction of storm drainage systems. • FRP works. • Construction of flood relief culvert. • Piling and abutments. • Construction of new road alignments. • Construction of temporary creek crossings.	Yes, transfer to Rosehill Water Treatment Plant
Rosehill	• Delivery of equipment and segments. • General operation of ancillary facility. • TBM excavation. • Cross Passage excavation. • Water treatment plant operation and water discharge. • Grout batching plant operation. • Tree removal along Unwin Street. • Transportation of excavated material and concrete waste. • General operation of ancillary facilities.	Yes, discharged to EPL point four (Duck River)

SITE	CONSTRUCTION ACTIVTIES	OFFSITE DISCHARGE
SOP	• Nozzle construction and FRP. • TBM retrieval. • General operation of ancillary facilities. • Cross passage excavation and waterproofing. • Spoil loadout. • Removal of cross passage ramps. • FRP of cross passage and inverts.	Yes, transfer to Rosehill Water Treatment Plant.

Table 4: *Water treatment plants commissioned for the Project.*

Water treatment plant	Discharge point (EPL)	Status during reporting period
Westmead Permanent water treatment plant	**Point 3 -** Parramatta River, stormwater system on Alexandra Avenue	No water has been discharged off-site during the reporting period. Water has only been reused on-site or disposed off-site to a licensed waste facility.
Rosehill Permanent water treatment plant	**Point 4** - Duck River	Plant was operational during the reporting period.
Parramatta Construction water treatment plant	**Point 5 -** Parramatta River, downstream of the Charles Street weir	Plant was operational during the reporting period.

3 MONITORING METHODOLOGY

3.1 Methodology

The SWQMoP outlines the methodology to be adopted in monitoring surface water during construction. It outlines the proposed monitoring locations, schedule for monitoring and the methodology including calibration requirements.

Additionally, the SWQMoP outlines a four-step method to assessing the results in construction compliance reports. Due to the highly variable background results, a step-based trigger action approach will be applied when reviewing and responding to the surface water quality monitoring results to determine the significance of the exceedance(s) and possible causes. The assessment of the results obtained during this reporting period is further discussed in **Section 4** below.

3.2 Equipment and analysis

Monitoring locations were sampled in accordance with the SWQMoP. Samples were collected from approximately 150mm below the water surface (where achievable) using water sampling containers supplied by Envirolab – a National Association of Testing Authorities (NATA) accredited laboratory. Samples were then placed on ice and held in an insulated container until delivery to the NATA accredited laboratory under chain of custody protocol. The samples were submitted for analysis for all parameters required in the SWQMoP.

Water Quality Objectives (WQOs) were measured in-situ at each sampling location using a Horiba multi-probe monitoring device and general site conditions were noted. A calibration check was undertaken at the start of each sampling round to ensure that the monitor was reading accurately. In addition, laboratory calibration was undertaken periodically throughout the reporting period to ensure that the multiprobe device was operating to specification. Calibration records are presented in ***Attachment 1 – Calibration Certificates***.

Further to the above analysis, all samples collected by GLC will also be subject to a Quality Assurance (QA) and Quality Control (QC) testing regime undertaken by Envirolab in which:

- Duplicates will be collected and analysed at a rate of 1 in every 10 primary samples
- Triplicates will be collected and analysed at a rate of 1 in every 20 primary samples
- Reinstate samples will be collected and analysed at a rate of one every sampling event.

These testing regimes are determined by the laboratory of choice and may be varied based on changes to their own QA /QC protocol. It is not influenced by GLC. Results of these QA/QC tests are supplied to GLC on a routine basis and stored on GLC's internal filing system.

3.3 Sampling during the reporting period

In accordance with the SWQMoP, surface water monitoring is required under the scenarios detailed in **Table 5**.

Table 5: *Surface Water Monitoring Schedule.*

Type	Frequency	Reference	Responsibility
Monthly Water Quality Monitoring	Monthly	WQOs ANZG 2018	Environmental Coordinator/Manager
Wet Weather Inspection	Additional inspections would occur (where safe/practical) when more than 20mm of rain is received within a 24-hour period.	CEMF 12.2 (e)(ii)	Environmental Coordinator/Manager
Incident Response	At any time in response to a complaint or incident	MCoA A43	Environmental Coordinator/Manager

Six (6) monthly monitoring events were completed during the reporting period as detailed in **Table 6** below. No sampling events were undertaken in response to incidents during the reporting period.

Table 6: *Surface water sampling events during the reporting period.*

Date	Sampling Round Type	Parameters Monitored	Comments
09/08/2024	Monthly	WQOs ANZG 2018	All sampling points captured
30/09/2024	Monthly	WQOs ANZG 2018	All sampling points captured with the exception of SW01 and SW02, which were inaccessible, and SW05, which was permanently removed from the SWQMoP.
31/10/2024	Monthly	WQOs ANZG 2018	All sampling points captured with the exception of SW04, which was permanently removed from the SWQMoP. SW01 was permanently relocated to a more accessible location nearby and sampling was captured.
21/11/2024	Monthly	WQOs ANZG 2018	All sampling points captured
16/12/2024	Monthly	WQOs ANZG 2018	All sampling points captured
14/01/2025	Monthly	WQOs ANZG 2018	All sampling points captured

3.4 Monitoring locations

Due to a progression of construction activities and following recommendations from the fourth sixth-monthly construction monitoring report, several Sampling Points were removed and or relocated for various reasons. These include:

- Sampling point SW01 was relocated approximately 100m upstream from the previous sampling location as the original location was impacted by the expansion of the construction site. The new location is located on Duck Creek, upstream of construction activities, and provides a safely accessible sampling point. Pre-construction baseline data from the original SW01 location remains representative of the new sampling location given it has the same catchment, is located <100m upstream of the prior location, and because it is unaffected by WTP related construction activities.

- Sampling points SW04 and SW05 were permanently removed in October 2024 and September 2024 respectively due to the relocation of EPL Discharge Point 5. New sampling locations were identified and recorded as SW07 and SW11 to the SWQMoP and were included in the 2024 update to the SWQMoP.
- Sampling point SW12 was also removed from this six-monthly construction monitoring report due to an absence of WTP Construction activities which could otherwise have an impact on Haslam Creek.

The surface water sampling locations are summarised in **Table 7**, shown graphically in **Figure 4 and 5**, along with the EPL Discharge points. Images of the sampling locations during the reporting period have been presented in **Figure 4**, noting the former and new SW01 sampling locations are captured in the August 2024 and November 2024 monitoring rounds respectively. Where there are extraneous factors limiting access to specific monitoring points, representative monitoring locations that differ slightly to the SWQMoP would be selected if possible.

***Table 7:** Sydney Metro West - WTP surface water sampling locations.*

Sample Name	Waterway	Rationale	Nearest Access Point	Coordinates	Comments
SW01-WTP	Duck Creek	Upstream of Clyde MSF Construction sites	Kay Street	33°49'50.82"S 151° 1'19.32"E	Location used until September 2024
			James Ruse Drive	33° 49' 53.17" S 151° 1' 12.02" E	New location adopted from October 2024
SW02-WTP	Duck Creek	Downstream of Clyde MSF Construction sites / before confluence with Duck River	Deniehy Street	33°49'58.58"S 151° 1'41.11"E	
SW03-WTP	Duck River	Downstream of Clyde MSF Construction sites / after confluence with Duck Creek	Holker Street, Silverwater	33°82'93.86" S 151° 0'24.68"E	
SW04-WTP	Parramatta River	Upstream of potential treatment plant discharge location	Parramatta River Walk (upstream Barry Wilde Bridge)	33°48'42.85"S 151° 0'25.03"E	Monitoring point removed starting from the October 2024.
SW05-WTP	Parramatta River	General streamflow sample	Parramatta River Walk (upstream Elizabeth Street Footbridge)	33°48'45.57"S 151° 0'30.41"E	Monitoring point removed September 2024 sampling event.
SW06-WTP	Parramatta River	Targeting saltwater zone below weir	Parramatta River Walk (upstream Ferry Wharf)	33°48'47.83"S 151° 0'35.37"E	
SW07-WTP	Domain Creek	Downstream of Westmead Construction Site	West Domain Avenue	33°48'33.46"S 150°59'35.58"E	
SW08-WTP	Duck River	Upstream of confluence with Duck Creek	Access from Martha Street via cycle path	33°83'52.91"S 151°02'94.05"E	
SW09-WTP	A'Becketts Creek	Upstream of Clyde MSF construction sites	Clyde Dive Construction Site	33°49'46.2"S 151°01'12.3"E	

Sample Name	Waterway	Rationale	Nearest Access Point	Coordinates	Comments
SW10-WTP	Domain Creek	Upstream of Westmead Construction Site	Parramatta Park (south of Park Parade)	-33°81’105’’S 150°99’175’’E	
SW11-WTP	Parramatta River	Downstream of Parramatta Discharge Point	Queens Wharf Park (south of Parramatta River)	33°48’54.5’’S 151°00’42.1’’E	
SW12-WTP[1]	Haslams Creek	Downstream of Sydney Olympic Park construction site	Bennelong Parkway bridge	33° 50' 5.28'' S 151° 4' 33.1968'' E	No samples were collected from this monitoring point during the reporting period.

[1] Monitoring point SW12 (SOP - Haslams Creek) was included in the SWQMoP in the February 2024 update in anticipation for potential surface water quality impacts by WTP and mimics the sampling location utilised by AFJV’s SWQMoP. However, given water treatment and discharge at SOP was managed by AFJV on behalf of GLC up until TBM breakthrough on July 8th, 2024, any surface water impacts in surrounding waterways have been monitored by AFJV’s SWQMoP. Considering GLC did not undertake any treatment or discharge to waterways in the vicinity of SOP, no sampling of waterways at SW12 occurred by GLC given the discharge parameters of AFJV’s water treatment plant are different to those used and known by GLC and any impacts could not be isolated to GLC alone. Refer to AFJV’s monitoring report for water quality results associated with Haslam Creek. SW12 will be omitted from the surface water quality monitoring program.

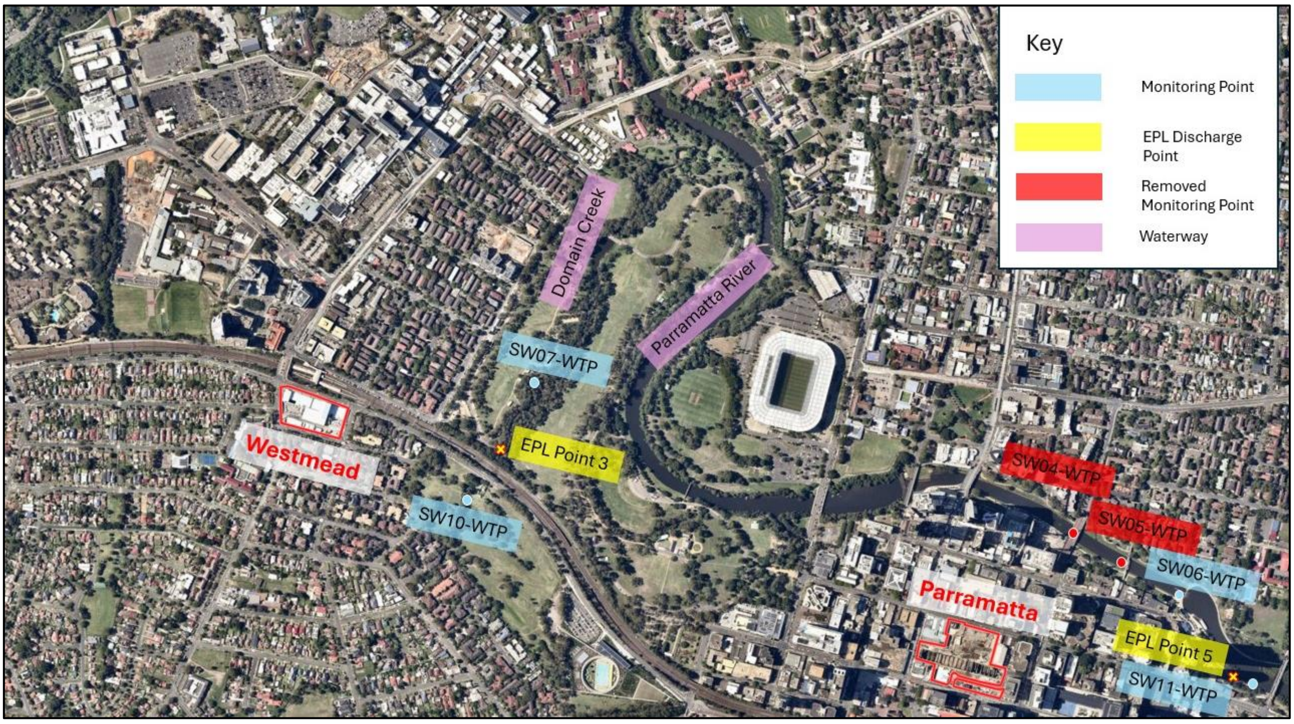


Figure 4: *Sydney Metro West - WTP western surface water sampling locations (Parramatta and Westmead).*

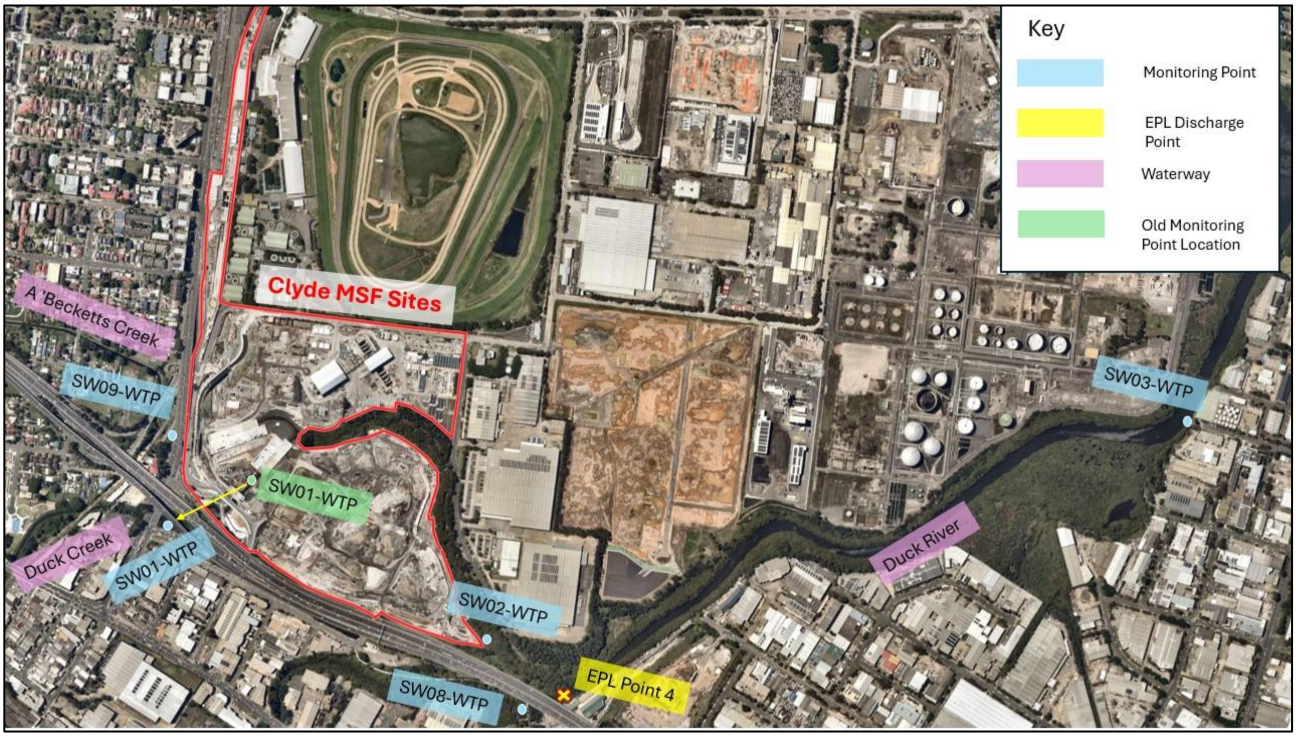


Figure 5: *Sydney Metro West - WTP eastern surface water sampling locations (Clyde MSF).*


SW01 – August 2024


SW01 – November 2024


SW02 – August 2024


SW03 – August 2024


SW04 – August 2024

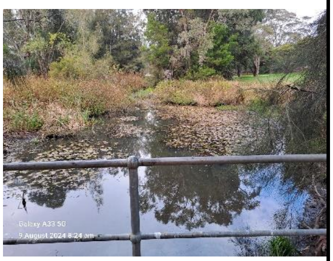

SW05 – August 2024


SW06 – August 2024


SW07 – August 2024


SW08 – August 2024


SW09 – August 2024


SW10 – August 2024


SW11 – August 2024

Figure 6: *Visual depictions of all monitoring points sampled throughout the reporting period.*

3.5 Parameters and Contaminants of concern

As outlined in the SWQMoP, the surface water monitoring parameters adopted for the Project are detailed in Table 8. The following potential contaminants were sampled in accordance with **Section 5.4.2** of the SWQMoP:

- Metals (As III, AS V, Cd, Cr III, Cr VI, Cu, Co, Fe, Hg, Pb, Mn, Ni, Zn)
- Benzene, toluene, ethylbenzene, xylene, naphthalene
- Polycyclic aromatic hydrocarbons
- Nutrients and Inorganics – total nitrogen, total phosphorous, total oxidized nitrogen, nitrate, nitrite, total ammonia
- Per- and polyfluoroalkyl substances (PFAS)
- Petroleum hydrocarbons

Table 8: *Sydney Metro West - WTP adopted surface water monitoring assessment criteria.*

Indicator / Parameter	Upper Estuary	Lowland Rivers
Turbidity (NTU)	0.5 – 10	6 - 50
Dissolved Oxygen (%)	80 -110%	85 – 110%
Conductivity (µS/cm)	NA	125 - 2200
pH (units)	7.0 – 8.5	6.5 – 8.5
Oil and grease	Nonvisible on surface	Nonvisible on surface
Toxicants (listed above)	ANZG 2018	ANZG 2018

3.6 Baseline data (pre-construction)

The Sydney Metro West EIS does not contain any baseline surface water quality data. In lieu of any baseline data, a review of data sourced from surrounding major projects and additional pre-construction surface water quality sampling was undertaken and are presented in **Table 9**.

Although these results will give an indication of pre-construction water quality, these results are not directly comparable to the WTP sampling locations utilised during this report and should only be used as reference.

Table 9: *Baseline Water Quality Data (Source: Sydney Metro West EIS).*

Indicator	ANZECC/ARCANZ WQ Guidelines 2000	Duck River	Duck Creek (Kay St)	Parramatta River (Barry Wilde Bridge)	Parramatta River (Elizabeth St Footbridge)	Parramatta River (Upstream of Ferry Wharf)
Turbidity (NTU)	Upper Estuary 0.5–10 Lowland Rivers 6-50	37.1	24.1	14.3	10.05	14
Dissolved Oxygen (mg/L)	N/A	4.9	7.4	8.7	9.0	7.6
Dissolved Oxygen (%)	85-110	49.2	67.3	95.4	98.2	82.4
Conductivity (mS/cm)	Lowland rivers: 125–2200 µS/cm	7.00	1.42	452.5	457	432
Salinity (ppt)	N/A	7.5	0.71	-	-	-

pH	7.0 – 8.5	7.50	7.98	7.97	8.20	7.4

To provide more accurate baseline data for comparison throughout construction of the Project, a total of six (6) pre-construction sampling rounds were undertaken at the nominated sampling points in the SWQMoP (Rev C). ***Attachment 2*** contains tabulated preconstruction data as well as the 6 – monthly water quality data collected during this reporting period both compared against the adopted assessment criteria**.** As the GLC SWQMoP has collected a significant volume of pre-construction baseline data, the data presented in **Table 9** will be omitted from further discussion in this report.

The pre-construction baseline monitoring highlights that several water parameters are above the adopted trigger levels. This is likely attributed to the highly disturbed nature of the catchments that drain into the waterways. Parameters that were recorded above the adopted assessment criteria in pre-construction sampling rounds are detailed in **Table 10** and described below:

- Turbidity and dissolved oxygen were consistently recorded outside the adopted criteria across all sampling locations. This is indicative of poor water quality is poor.
- Nutrients such as Phosphorus and Nitrogen were generally found to be above the adopted screening criteria in all sampling locations, which is typical of waterways that receive run off from urban areas where fertilisers may be used (or a product of waste).
- Several toxicant parameters including nutrients, heavy metals and PFAS were also consistently recorded results outside the adopted assessment criteria. This is likely attributed to the historic large-scale commercial/industrial practices undertaken within and upstream of the catchment areas.
- All waterways sampled in the surface water monitoring program are part of the local stormwater catchments that receive large flows of runoff from the greater Parramatta area.

Refer to ***Attachment 2*** for the adopted assessment criteria for each sampling location.

Table 10: *Pre-Construction Monitoring results in excess of the adopted assessment criteria.*

Sample Location	Parameter	Max Concentration Recorded	Assessment Criteria
SW01	Turbidity	50.9 NTU	0.5 – 10 NTU
	Dissolved Oxygen	24.3%	80 – 110 %
	Phosphorus	0.3 mg/L	0.03 mg/L
	Total Nitrogen	2.7mg/L	2.4 mg/L
	Copper	6 µg/L	1.3 µg/L
	Manganese	350 µg/L	80 µg/L
	Zinc	45 µg/L	8 µg/L
	PFOS	0.13 µg/L	0.13 µg/L
	TRH C10 – C40	220 µg/L	Presence
	TRH > C10 – C16	62 µg/L	Presence
	TRH >C10-C16 less Naphthalene (F2)	62 µg/L	Presence
	TRH >C16-C34	160 µg/L	Presence
	TRH C10-C14	66 µg/L	Presence
	TRH C10-C36 (Total)	190 µg/L	Presence
	TRH C15-C2	120µg/L	Presence
SW02	Turbidity	60.5 NTU	0.5 – 10 NTU
	Dissolved Oxygen	13.3%	80 – 110 %
	Phosphorus	0.1 mg/L	0.03 mg/L
	Copper	5 µg/L	1.3 µg/L

Sample Location	Parameter	Max Concentration Recorded	Assessment Criteria
	Manganese Zinc	230 µg/L 35 µg/L	80 µg/L 8 µg/L
SW03	Turbidity Dissolved Oxygen Phosphorus Copper Manganese Zinc	80.8 NTU 36.3 % 0.1 mg/L 6 µg/L 99 µg/L 47 µg/L	0.5 – 10 NTU 80 – 110 % 0.03 mg/L 1.3 µg/L 80 µg/L 8 µg/L
SW04	Turbidity Dissolved Oxygen Phosphorus Total Nitrogen Copper Zinc	73.6 NTU 61 % 0.5 mg/L 3.6 mg/L 3 µg/L 10 µg/L	6 – 50 NTU 85 – 110 % 0.035 mg/L 2.4 mg/L 1.4 µg/L 8 µg/L
SW05	Turbidity Dissolved Oxygen Phosphorus Total Nitrogen Copper Zinc	84.6 NTU 54.5 % 0.1 mg/L 3.5 mg/L 3 µg/L 9 µg/L	6 – 50 NTU 85 – 110 % 0.035 mg/L 2.4 mg/L 1.4 µg/L 8 µg/L
SW06	Turbidity Dissolved Oxygen Phosphorus Manganese Zinc	114 NTU 52.9 % 0.1 mg/L 81 µg/L 9 µg/L	0.5 – 10 NTU 80 – 110 % 0.03 mg/L 80 µg/L 8 µg/L
SW07	Turbidity Dissolved Oxygen Phosphorus Chromium Copper Zinc	28.3 NTU 41.1 % 0.1 mg/L 1 µg/L 6 µg/L 29 µg/L	6 – 50 NTU 85 – 110 % 0.035 mg/L 0.001 µg/L 1.4 µg/L 8 µg/L
SW08	Turbidity Dissolved Oxygen Phosphorus Copper Manganese Zinc	104 NTU 19.9 % 0.3 mg/L 7 µg/ L 110 µg/L 42 µg/L	0.5 – 10 NTU 80 – 110 % 0.03 mg/L 1.3 µg/L 80 µg/L 8 µg/L
SW09	Turbidity Dissolved Oxygen Phosphorus Copper Manganese Zinc	70.7 NTU 49.7 % 0.1 mg/L 6 µg/L 100 µg/L 59 µg/L	0.5 – 10 NTU 80 – 110 % 0.03 mg/L 1.3 µg/L 80 µg/L 8 µg/L

4 RESULTS

4.1 Rainfall summary

Rainfall data from the monitoring period is displayed in **Figure 5**. Notable lower rainfall was recorded in August and October 2024.

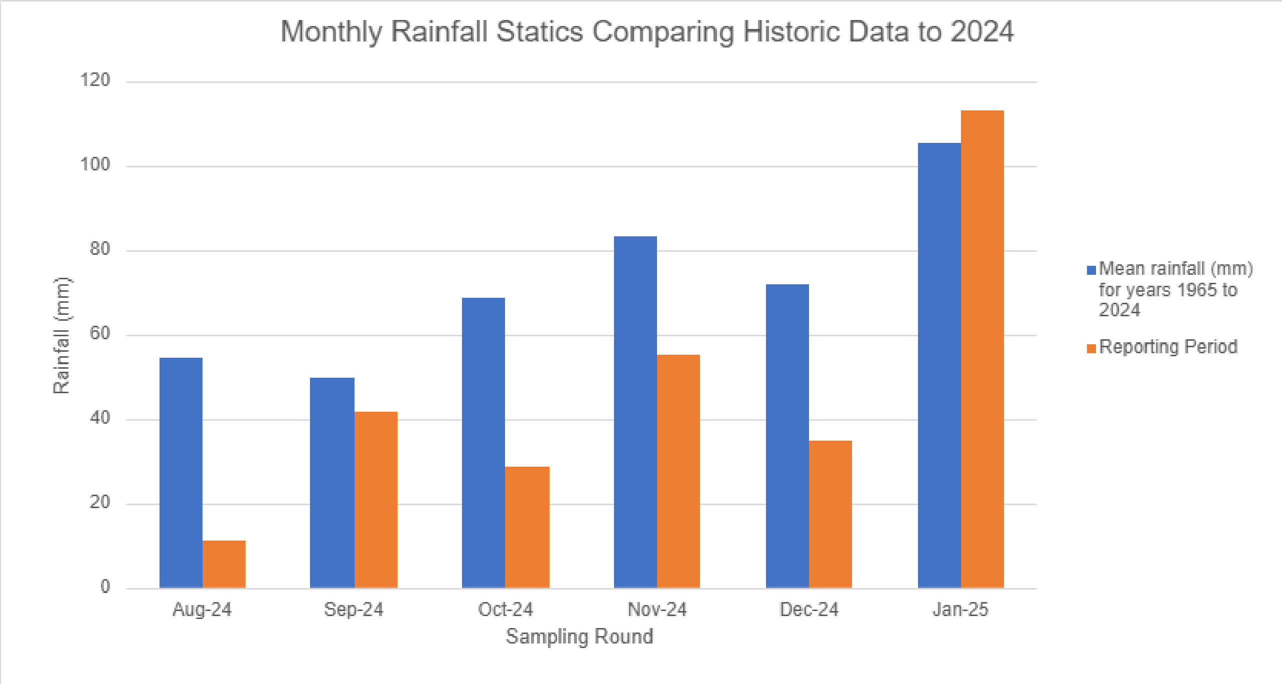


Figure 5: *Rainfall statistics recorded during the monitoring period compared against historic averages (Bureau of Meteorology (BOM)).*

4.2 Monitoring results

Tabulated monitoring results are attached to this report in ***Attachment 2***. Monitoring data has been compared against the relevant WQOs and ANZG 2018 assessment criteria. Laboratory certificates can be found in ***Attachment 3***.

Consistent with the pre-construction sampling, several parameters exceeded the assessment criteria at all sampling points. These results are discussed in detail in **Section 5**.

5 DISCUSSION

5.1 Assessment of results

Analytes that have exceeded the assessment criteria from this monitoring round have been graphed alongside data from previous monitoring rounds and pre-construction sampling to provide an analysis of trends. These graphs are provided in ***Attachment 4****.*

The surface water monitoring locations and parameters adopted for WTP are detailed in **Table 7** and **Table 8**, respectively. The adopted assessment criteria for each monitoring location are outlined in **Table 11** below.

Where results were returned outside the assessment criteria, they were assessed in accordance with the four-step process detailed in the SWQMoP and discussed below.

Table 11: Adopted assessment criteria for each WTP monitoring location.

Assessment Criteria with reference to ANZG 2018	Sample point
Upper Estuary	SW01, SW02, SW03, SW06, SW08, SW09, SW11
Lowland Rivers	SW07, SW10

5.1.1 Step 1

'*In the event of an exceedance of any of the trigger values, a review will be initiated to determine the significance of the exceedance and the possible causes'*.

Surface water sampling results were compared against the relevant WQOs and ANZG 2018 assessment criteria. The number of results recorded outside the assessment criteria is listed in **Table 12**. As such, further analysis of these parameters was undertaken in accordance with Step 2 of the Surface Water Quality Monitoring Program, see below.

Table 12: *Number of parameters recorded outside the assessment criteria in each sampling round.*

Sample Point	Number of Parameters Recorded Outside the Assessment Criteria					
	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
SW01	4	NA[1]	4	5	6	5
SW02	5	NA[2]	3	5	5	5
SW03	4	4	3	3	3	3
SW04	4[3]	3[3]	NA[4]	NA[4]	NA[4]	NA[4]
SW05	6[5]	NA[6]	NA[6]	NA[6]	NA[6]	NA[6]

Sample Point	Number of Parameters Recorded Outside the Assessment Criteria					
	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
SW06	3	4	3	4	4	4
SW07	5	3	7	5	7	5
SW08	4	5	4	4	5	6
SW09	6	5	4	5	6	4
SW10	5	5	3	4	5	5
SW11	5	5	3	4	4	3

[1] SW01 not sampled – location was inaccessible at the time of sampling due to excavation works being undertaken in the creek line.
[2] SW02 not sampled – location was inaccessible at the time of sampling due to the presence of a snake, posing a safety risk.
[3] SW04 sampled – however, data will not be used to explain exceedances upstream or downstream as the point is permanently removed from the monitoring report.
[4] SW04 not sampled – monitoring point was removed starting from October 2024.
[5] SW05 sampled – however, data will not be used to explain exceedances upstream or downstream as the point is permanently removed from the monitoring report.
[6] SW05 not sampled – monitoring point was removed starting from September 2024.

5.1.2 Step 2

'A comparison will be undertaken between the upstream and downstream values'.

For the parameters that exceed the adopted assessment criteria, an assessment was undertaken comparing the results of up and down stream sampling locations. Where the downstream concentration of contaminants is consistent with the upstream contaminant concentrations, no further action would be taken.

Further investigation was deemed necessary under the following circumstances:

1. Where the downstream value is greater than 2x than the upstream value for any parameter that exceeds the adopted trigger criteria upstream of the project site (i.e., ANZG / ANZECC DGVs), Steps 3-4 would be followed.
2. Where the downstream value exceeds the adopted trigger criteria (i.e., ANZG / ANZECC DGVs) and upstream value does not Steps 3-4 would be followed.

Following the assessment under Step 2, it was identified that there were twenty-seven (27) instances where downstream sampling points recorded concentrations of an analyte more than twice an upstream sampling location or exceeded the assessment criteria where the upstream sampling location did not. These 27 exceedances have been listed below in **Table 13** and are discussed in **Section 5.1.3**. During the reporting period, exceedances were identified in samples collected at Westmead, Parramatta, and Clyde MSF sampling locations.

Table 13: Samples where downstream values outside the range of the upstream values.

Sampling Round	Parameter	Assessment Criteria	Upstream Point	Upstream Result	Downstream Point	Downstream Result	Exceedance Number
Aug - 24	Turbidity (field)	6.0 – 50.0 NTU	SW10	0	SW07	126.0	One
Aug - 24	Turbidity (field)	0.5 – 10.0 NTU	SW06	5.7	SW11	0.0	Two
Aug - 24	Turbidity (field)	0.5-10 NTU	SW09 & SW01	8.5 & 5.0	SW02	0.0	Three
Aug - 24	Turbidity (field)	0.5-10 NTU	SW02 & SW08	1.4 & 3.4	SW03	28.0	Four
Sep - 24	DO%	80.0 – 110.0%	SW06	102.9	SW11	78.8	Five
Oct - 24	pH (field)	6.5 – 8.5	SW10	7.05	SW07	8.66	Six
Oct - 24	Turbidity (field)	6.0 – 50.0 NTU	SW10	7.6	SW07	5.7	Seven
Oct - 24	Ammonia	0.9 mg/L	SW10	0.53	SW07	5.7	Eight
Oct - 24	Copper (dissolved)	1.4 ug/L	SW10	1.0	SW07	5.0	Nine
Oct - 24	Zinc (dissolved)	8.0 ug/L	SW10	6.0	SW07	10.0	Ten
Oct - 24	Turbidity (field)	0.5 – 10.0 NTU	SW07	5.7	SW06	10.5	Eleven
Oct - 24	Zinc (dissolved)	8.0 ug/L	SW06	8.0	SW11	13.0	Twelve
Nov - 24	Ammonia	0.9 mg/L	SW10	0.53	SW07	0.91	Thirteen
Nov - 24	Zinc (dissolved)	8.0 ug/L	SW10	9.0	SW07	21.0	Fourteen
Nov - 24	Zinc (dissolved)	8.0 ug/L	SW01	9.0	SW02	21.0	Fifteen
Dec – 24	Turbidity (field)	6.0 – 50.0 NTU	SW10	1.5	SW07	0.3	Sixteen
Dec – 24	Ammonia	0.9 mg/L	SW10	0.42	SW07	6.9	Seventeen
Dec – 24	Total Nitrogen	2.4 mg/L	SW10	1.1	SW07	8.2	Eighteen

Sampling Round	Parameter	Assessment Criteria	Upstream Point	Upstream Result	Downstream Point	Downstream Result	Exceedance Number
Dec – 24	Cobalt (dissolved)	1.4 ug/L	SW10	<1	SW07	2.0	Nineteen
Dec – 24	Phosphorus	0.03 mg/L	SW07	0.1	SW06	0.2	Twenty
Dec – 24	Copper (dissolved)	1.3 ug/L	SW07	<1	SW06	2.0	Twenty-one
Dec-24	Copper (dissolved)	1.3 ug/L	SW02 & SW08	1.0 & 1.0	SW03	2.0	Twenty-two
Jan - 25	Turbidity (field)	6.0 – 50.0 NTU	SW10	14.3	SW07	3.4	Twenty-three
Jan - 25	DO%	85.0 – 110.0%	SW10	157.3	SW07	58.2	Twenty-four
Jan - 25	Turbidity (field)	0.5 – 10.0 NTU	SW07	3.4	SW06	11.9	Twenty-five
Jan-25	Copper (dissolved)	1.3 ug/L	SW09 & SW01	1.0 & 1.0	SW02	2.0	Twenty-six
Jan-25	Zinc (dissolved)	8.0 ug/L	SW01	9.0	SW02	27.0	Twenty-seven

5.1.3 Step 3

'Where the exceedance of the preliminary trigger value occurs, a review will be initiated to determine the significance of the exceedance and the possible causes'.

As shown in Table 13, exceedances of criteria were investigated and are explained below with upstream sampling points preceding the downstream sampling points:

- **Exceedance one – SW10 to SW07 – August 2024 – Turbidity (field)**

Both upstream and downstream field turbidity levels between SW10 and SW07 in August were observed as being outside the ANZG 2018 criteria. While the downstream values were considerably higher, these turbidity levels were comparable to the baseline levels recorded at SW07. The NATA accredited lab results for SW07 showed turbidity results that were within the ANZG 2018 criteria (NTU = 13). The abnormal field exceedance, according to ANZG 2018 Standard could be attributed to sampling conditions such as lower temperatures resulting in reduced turbidity probe readings accuracy. The returned lab results are considered more accurate than field sampling conditions, and therefore no further action was needed. It should be noted that it is unlikely that that the observed turbidity levels are related to the construction activities as no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance two – SW06 to SW11 – August 2024 – Turbidity (field)**

The downstream field turbidity levels recorded in August were below the ANZG 2018 criteria at SW11, but within the criteria for SW06. The NATA accredited lab results for SW06 and SW11 however showed turbidity results that were within the ANZG 2018 criteria (NTU = 5 and 2.4 respectively). The abnormal field exceedance, according to ANZG 2018 Standard could be attributed to sampling conditions such as lower temperatures resulting in reduced turbidity probe readings accuracy. The returned lab results are considered more accurate than field sampling conditions, and therefore no further action was needed.

It should also be noted that the Parramatta water treatment plant was already commissioned in August 2024. Biweekly water sampling was conducted and two permits to discharge water were issued – all of which were compliant with the EPL. No discharge incidents or non-conformances were reported.

- **Exceedance three – SW01 & SW09 to SW02 – August 2024 – Turbidity (field)**

The turbidity levels recorded are comparable to the baseline levels recorded at SW02. The corresponding NATA accredited lab results for SW02 (NTU = 1.4) and both upstream locations (SW09 = 9.2 and SW01 = 4.9) returned turbidity results within the assessment criteria, suggesting the environmental conditions such as temperature, were unfavourable to obtaining accurate field turbidity results (ANZG 2018). It is also unlikely that the low turbidity levels are related to the construction activities being undertaken at the Clyde MSF site given that the Rosehill water treatment plant discharges downstream of sampling point SW02.

- **Exceedance four – SW02 & SW08 to SW03 – August 2024 – Turbidity (field)**

The exceedance of turbidity (field) results recorded at SW03 is comparable to baseline levels. Field observations during sampling identified an organic foam layer on the water's surface. Turbidity concentrations returned to within the assessment criteria during the September 2024 sampling round (SW03 = 9.4), indicating no increasing trend in turbidity concentrations. Instead, the elevated turbidity levels in August were likely due to the foam layer identified during the sampling process.

- **Exceedance five – SW06 to SW11 – September 2024 – Dissolved Oxygen %**

SW11 recorded DO% exceedance at SW11 is comparable to DO% data collected from former surface water sampling occurrences prior to the commissioning of the Parramatta water treatment plant. A consistent trend of DO% values being outside the ANZG 2018 limit indicates that the discharge of Parramatta water treatment plant is unlikely to influence the DO% readings. The exceedance can be related to other external factors such as industrial and recreational activities along Parramatta River, high nutrient content and therefore oxygen demand.

- **Exceedance six – SW10 to SW07 – October 2024 – pH (field)**

The pH levels recorded in the October 2024 sampling round are slightly higher than the ANZG 2018 criteria. However, SW07's corresponding lab sample returned results within the adopted ANZG 2018 criteria (pH =7.7). It should be noted that it is unlikely that the higher pH level recorded during field sampling is related to the construction activities being undertaken at the Westmead site given that that no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance seven – SW10 to SW07 – October 2024 – Turbidity (field)**

The turbidity levels recorded in the October 2024 sampling round are comparable to the baseline levels recorded at SW07. The NATA accredited lab results in October for SW07 (3.1) and SW10 (3.9) showed consistently low turbidity readings which are unlikely to be attributed to construction activities given that no offsite discharge occurred from the Westmead water treatment plant throughout the monitoring period.

- **Exceedance eight – SW10 to SW07 – October 2024 – Ammonia**

The ammonia levels recorded in the October 2024 sampling round is higher than the ANZG 2018 criteria for the downstream point SW07 but within criteria for the upstream point SW10. The recorded exceedance cannot be corelated to construction activities at Westmead construction site as no discharge took place prior to the sampling event. The recorded exceedance can be attributed to external factors unrelated to construction activities such as stormwater runoff from residential and commercial activities occurring in the catchment of Domain Creek.

- **Exceedance nine – SW10 to SW07 – October 2024 – Copper (dissolved)**

The copper levels recorded in the October 2024 sampling round exceeded the ANZG 2018 criteria for downstream sampling point SW07 and was within the criteria for the upstream sampling point, SW10. The recorded exceedance is however comparable to the baseline levels recorded at SW07, suggesting the high copper levels are unrelated to the construction activities. This is on account no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance ten – SW10 to SW07 – October 2024 – Zinc (dissolved)**

The zinc levels recorded in the October 2024 sampling round exceeded the ANZG 2018 criteria for downstream sampling point SW07 and was within the criteria for the upstream sampling point, SW10. The recorded copper exceedance is however comparable to the baseline levels recorded at SW07 suggesting the higher copper levels are unrelated to the construction activities. This is on account no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance eleven – SW07 to SW06 – October 2024 – Turbidity (field)**

The turbidity levels recorded in the October 2024 sampling round are comparable to the baseline levels recorded at SW06. The corresponding NATA accredited lab results at SW07 and SW06 however, returned turbidity results within the ANZG 2018 criteria (3.1 and 6.7 respectively). It is therefore unlikely that the elevated field turbidity levels are related to the construction at the Westmead site given that no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. Also, the elevated turbidity cannot also be attributed to Parramatta water treatment plant discharge as SW06 is upstream of EPL point 5.

- **Exceedance twelve – SW06 to SW11 – October 2024 – Zinc (dissolved)**

The zinc levels recorded at SW11 in the October 2024 sampling round is comparable to zinc data collected from surface water sampling rounds prior to the commissioning of the Parramatta water treatment plant. Throughout GLC's implementation of the SWQMoP, zinc levels have been consistently observed to reside outside the ANZG 2018 assessment criteria, suggesting that the discharge from Parramatta's WTP is unlikely to influence zinc levels. Instead, these exceedances are likely attributed to other external factors such as stormwater runoff from commercial, industrial and recreational activities in the catchment of Parramatta River.

It should also be noted that the Parramatta water treatment plant was already commissioned in October 2024. Monthly water sampling was conducted and one permit to discharge water was issued, accordingly. The discharged water from the Parramatta water treatment plant was compliant with the EPL for point 5 and therefore could not have contributed to the observed exceedance of Zinc. No discharge incidents or non-conformances were identified or reported at the time of the exceedance.

- **Exceedance thirteen – SW10 to SW07 – November 2024 – Ammonia**

The ammonia levels recorded in the November 2024 sampling round is higher than the ANZG 2018 criteria for the downstream point SW07 and within criteria for the upstream point SW10. The recorded exceedance cannot be corelated to construction activities at Westmead construction site as no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. In accordance with the ANZG 2018 Standard, the exceedance can be related to other external environmental factors such as decreased pH and water temperature which increase the levels of unionised ammonia, affecting the total ammonia values.

- **Exceedance fourteen – SW10 to SW07 – November 2024 – Zinc (dissolved)**

The zinc levels recorded in the November 2024 sampling round exceeded the criteria for both upstream and downstream sampling points, with SW07 being more than double the concentration of SW10. The recorded exceedance is however comparable to the baseline levels recorded at SW07. It should be noted that it is unlikely that the high zinc levels are related to the construction activities being undertaken at the Westmead site given that no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance fifteen – SW01 to SW02 – November 2024 – Zinc (dissolved)**

While the downstream zinc value was higher than the upstream value during the November 2024 monitoring event, this result was consistent with the baseline data, indicating that the elevated zinc (dissolved) concentration observed was not due to GLC construction activities but rather is a product of natural variation in the environment or other influencing factors (i.e commercial/industrial sources). This is further supported by the fact the Rosehill WTP discharge location is downstream of both sampling points, making it an unlikely contributor to the observed results.

- **Exceedance sixteen – SW10 to SW07 – December 2024 – Turbidity (field)**

The turbidity (field) levels recorded in the December 2024 sampling round are comparable to the baseline levels recorded at SW07. The corresponding NATA accredited lab results for both sampling locations however also returned turbidity results that were outside the ANZG 2018 criteria (SW10 = 3.2, SW07 = 4), however these were comparable to the baseline lab results for SW07 and historic data for SW10. It should be noted that it is unlikely that the low turbidity levels encountered during field sampling are related to the construction activities being undertaken at the Westmead site given that that no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance seventeen – SW10 to SW07 – December 2024 – Ammonia**

The ammonia levels recorded in the December 2024 sampling round is higher than the ANZG 2018 criteria for the downstream point SW07 and within criteria for the upstream point SW10. The recorded exceedance cannot be corelated to construction activities at Westmead construction site as no off-site discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. In accordance with the ANZG 2018 Standard, the exceedance can be related to other external environmental factors such as reduced pH and water temperature which increase the levels of unionised ammonia, affecting the total ammonia values.

- **Exceedance eighteen – SW10 to SW07 – December 2024 – Total Nitrogen**

The total nitrogen levels recorded in the December 2024 sampling round is higher than the ANZG 2018 criteria for the downstream point SW07 and within limit for the upstream point SW10. The recorded exceedance cannot be corelated to construction activities at Westmead construction site as no off-site discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. The exceedance can be related to other external environmental factors such as nutrient run-off from commercial and residential activities occurring within the stormwater catchment of Domain Creek.

- **Exceedance nineteen – SW10 to SW07 – December 2024 – Cobalt (dissolved)**

The cobalt levels recorded in the December 2024 sampling round is higher than the ANZG 2018 criteria for the downstream point SW07 and within limit for the upstream point SW10. The recorded exceedance cannot be corelated to construction activities at Westmead construction site as no off-site discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. The exceedance can however be related to stormwater run-off from commercial and industrial activities occurring within the catchment of Domain Creek.

- **Exceedance twenty– SW07 to SW06 – December 2024 – Phosphorus**

The phosphorus levels recorded in the December 2024 sampling round is higher than the ANZG 2018 criteria for both the downstream and upstream points, with the downstream value being twice the upstream reading. The recorded exceedance cannot be attributed to construction activities at Westmead construction site as no off-site discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. The recorded values cannot also be related to the Parramatta water Treatment plant discharge either, as SW06 is upstream of EPL point 5. The exceedance can therefore be related to other nutrient sources, such as commercial, residential and or industrial activities occurring within the catchment of Parramatta River.

- **Exceedance twenty-one – SW07 to SW06 – December 2024 – Copper (dissolved)**

The copper levels recorded in the December 2024 sampling round for SW06 exceeded the ANZG 2018 criteria, while no exceedance was recorded at the upstream point SW07. The recorded exceedance is unlikely related to the construction activities being undertaken at the Westmead site given that that no offsite discharge has occurred from the Westmead water treatment plant for the duration of the monitoring period. The recorded numbers cannot also be related to the Parramatta water Treatment plant discharge as SW06 is upstream of EPL point 5 (Parramatta water treatment plant discharge point). The exceedance is likely related to other external environmental factors or industrial activities taking place along the waterway alignment.

- **Exceedance twenty-two – SW02 & SW08 to SW03– December 2024 – Copper (dissolved)**

Copper results from the December 2024 sampling round at SW03 were compared against baseline data. Baseline pre-construction data showed a continuous trend in copper (dissolved) levels exceeding the designated guidelines. Similarly copper exceedances were present at both upstream sampling locations SW02 and SW08 throughout the monitoring period. The results of the December 2024 sampling round were consistent with the baseline monitoring results indicating that elevated copper concentrations were not a result of construction activities.

- **Exceedance twenty-three – SW10 to SW07 – January 2025 – Turbidity (field)**

The turbidity levels recorded in the January 2025 sampling round are comparable to the baseline levels recorded at SW07. The corresponding NATA accredited lab results for both sampling locations SW07 and SW10 also returned turbidity results outside ANZG 2018 criteria (NTU = 2.3 and 3.1 respectively). It is unlikely that the low turbidity levels are related to the construction activities being undertaken at the Westmead site given that that no offsite discharge had occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance twenty-four – SW10 to SW07 – January 2025 – Dissolved Oxygen %**

The dissolved oxygen levels recorded in the January 2025 sampling round are comparable to the baseline levels recorded at SW07. The low dissolved oxygen levels are unlikely to be related to construction activities at the Westmead site given that that no offsite discharge had occurred from the Westmead water treatment plant for the duration of the monitoring period.

- **Exceedance twenty-five – SW07 to SW06 January 2025 – Turbidity (field)**

The turbidity levels recorded in the January 2024 sampling round are comparable to the baseline levels recorded at SW06. The corresponding NATA accredited lab results for both sampling locations returned turbidity results of SW07 = 2.3 and SW06 = 4.4, with SW07 being outside the ANZG 2018 criteria. The SW06 field turbidity reading can be related to higher water turbulence due to rainfall when the sample was collected compared to settled conditions when the sample was tested in the lab. While there is an exceedance of the SW06 criteria (field), the lab results are consistent with baseline lab results obtained for this area. It is unlikely that the high turbidity levels are related to the construction activities as there has been no discharge from the Westmead water treatment plant for the monitoring period and also because SW06 is upstream of the Parramatta water treatment plant discharge point.

- **Exceedance twenty-six – SW09 & SW01 to SW02 - January 2025 – Copper (dissolved)**

Copper results from the January 2025 sampling round were compared against baseline data which showed copper (dissolved) levels consistently exceeding the adopted assessment criteria. Similarly, copper exceedances were present at both upstream sampling locations SW09 and SW01 throughout the monitoring period. The results of the January 2025 sampling round were consistent with the elevated baseline copper concentrations which suggests these exceedances were unlikely caused by construction activities. This is further supported by the fact the Rosehill WTP discharge location is downstream of both sampling points, making it an unlikely contributor to the observed results.

- **Exceedance twenty-seven – SW01 to SW02– January 2025 – Zinc (dissolved)**

While the downstream zinc (dissolved) value was higher than the upstream value during the January 2025 monitoring event, this result was consistent with the baseline data, indicating that the elevated zinc (dissolved) concentration observed was not due to GLC construction activities but rather a product of natural variation in the environment or other influencing factors (i.e commercial/industrial sources). This is further supported by the fact the Rosehill WTP discharge location is downstream of both sampling points, making it an unlikely contributor to the observed results.

5.1.4 Step 4

‘If the exceedance is determined to be attributable to Project works, the event will be treated as an environmental incident and managed in accordance with the requirements of Section 3.10 of the CEMP’.

The in-depth review undertaken in Steps 1 – 3 concluded that none of the exceedances could be attributed to GLC construction works. As such, notification of an environmental incident is not required under Section 3.10 of the CEMP.

5.2 Recommendations

- Given the findings of the monitoring results to date and the continuation of the project, surface water quality monitoring will continue in accordance with the SWQMoP for the duration of construction.
- Annual review of the SWQMoP to ensure the SWQMoP captures the recommendations nominated in the 4th and 5th SWQ CMR.

6 CONCLUSION

Results obtained from this monitoring period indicate that there has not been a degradation of the surrounding surface water network due to construction of the WTP. The results are generally consistent with the adopted assessment criteria and pre-construction baseline water quality data, implying that any deviations from the adopted screening criteria are not attributed to GLC's construction activities.

ATTACHMENTS

Attachment 1 – Calibration Certificates

SERVICE & CALIBRATION REPORT
Water Quality Meter

Customer Details:	**Job Number**	**Date**
Gamuda Berhad (t/a Gamuda Australia Branch) Level 8/60 Station Street Parramatta NSW 2150 Attn: Hala Abedelhadi	240773	9/07/2024

Instrument Model:	**Instrument Serial Number:**
HORIBA U-52/2m Multi-Parameter Water Quality Meter	YMNSJKOF 2021

Fault Report

Requires service/calibration. Control unit battery cover broken and needs replacing.

Repairs Carried Out

Replaced DO membrane and refilled pH reference electrode. Replaced damaged battery cover. Re-calibrated all sensors as follows:

Calibration (in accordance with manufacturer's specifications):

Parameter - unit	Before Calibration	Calibration Value	After calibration	Comment
pH (pH)	6.72	7.01	7.01	Pass
pH (pH)	3.91	4.00	4.00	Pass
ORP (mV)	234	225	225	Pass
Conductivity (mS/cm)	0.000	0.000	0.000	Pass
Conductivity (mS/cm)	0.720	0.718	0.718	Pass
Conductivity (mS/cm)	6.48	6.67	6.67	Pass
Conductivity (mS/cm)	57.5	58.6	58.6	Pass
Turbidity (NTU)	0.0	0.0	0.0	Pass
Turbidity (NTU)	0.0	8.0	8.0	Pass
Turbidity (NTU)	96.1	80.0	80.0	Pass
Turbidity (NTU)	412	400	400	Pass
D.O. zero (mg/L)	0.18	0.00	0.00	Pass
D.O. span (mg/L)	11.09mg/L @ 19.8°C	9.32mg/L @19.8°C	9.32mg/L @19.8°C	Pass
Temperature (°C)	19.27	19.0	19.0	Pass

Sensors:

pH Glass Electrode	pH Ref Electrode	ORP Electrode	DO Electrode
133288	WD69NXBC	S6H1F5CC	UPCGGWJ0

Comments:

MAKE SURE the pH reference electrode is refilled with soln #330 regularly. If the #330 soln solidifies inside the pH reference electrode, remove the liquid junction cap (flat black rubber cap with wick in the middle) and rinse out the old solution with distilled water. Then refill with fresh HORIBA soln # 330 and refit the liquid junction cap. Please read the notes on pH maintenance.

Calibration carried out by:

Tim Adams

AUSTRALIAN SCIENTIFIC PTY LTD

11 McDougall Street, Kotara, NSW, 2289

TEL: 1800 021 083

E-mail: sales@austscientific.com.au **www.austscientific.com.au**

HORIBA U-50 & U-10 Series Water Quality Meters

IMPORTANT INFORMATION
REGARDING pH MAINTENANCE
(all operators of this equipment should read this note)

The pH reference electrode (the one with the flat black rubber cap with a dot in the middle about the size of a 5 cent coin) should be topped up regularly with potassium chloride (KCl) #330 internal electrolyte solution which is supplied with the U-50 equipment. Peel back the flat black rubber cap (liquid junction cap) by placing a fingernail under the edge and remove it. Then pour the #330 solution directly into the reservoir. Any excess may be washed off when the cap is replaced.

In the centre of the flat black rubber cap is a small porous wick (liquid junction) which allows the electrolyte to pass from the reference electrode into the sample. If this wick becomes clogged with dirt it will restrict the flow of electrolyte solution and adversely affect pH measurement.

If only the tip of the wick is clogged it is possible to push the wick further through the rubber cap and cut off say 1mm of the wick with a sharp blade to remove the dirty section.

The liquid junction cap is a replacement part and supplied in packs of two (2) . How often this needs changing will depend on the nature of the samples being measured. Water with oil or grease or high levels of suspended solids will clog the liquid junction (wick) more quickly than clean water samples.

If the reference solution in the chamber is not topped up regularly, the KCl solution may solidify or crystallize inside the chamber . This can be removed using a cotton bud, but be careful not to bend the pin which protrudes from the base of the reference electrode . When the old KCl solution has been removed , refill it with fresh KCl soln. Alternatively, the inside of the chamber can be rinsed out with distilled or deionised water using a laboratory wash bottle. DO NOT UNSCREW the whole pH reference electrode to do this simple maintenance .

It is a good idea to completely replace the internal electrolyte solution in the reference tip every 2-3 months. If this is done regularly then the KCl solution will not solidify and you should simply be able to remove the liquid junction cap, invert the probe and all the liquid will pour out. Then refill the reference electrode with fresh solution #330.

pH Glass Electrode

The pH glass electrode is the second part of the pH system. The pH glass electrode should be kept clean and moist during storage to maintain accurate readings and fast response time. The small black plastic storage cap on the pH glass electrode should be removed prior to use. After use, place a couple of drops of pH electrode storage soln or clean tap water in the small plastic cap and place the cap over the glass electrode.

The pH glass electrode will deteriorate more quickly if it is allowed to stay dry for long periods (weeks-months).

HORIBA Service Centre

Water Quality Meters

Australia

TEL: 1800 021 083

SERVICE & CALIBRATION REPORT
Water Quality Meter

Customer Details:	Job Number	Date
Gamuda Berhad (t/a Gamuda Australia Branch) Level 8/60 Station Street Parramatta NSW 2150 Attn: Hala Abedelhadi	240774	9/07/2024

Instrument Model:

HORIBA U-52/2m
Multi-Parameter Water Quality Meter

Instrument Serial Number:

S48X0M7A 2021

Fault Report

Requires service/calibration.

Repairs Carried Out

Replaced DO membrane and refilled pH reference electrode. Re-calibrated all sensors as follows:

Calibration (in accordance with manufacturer's specifications):

Parameter - unit	Before Calibration	Calibration Value	After calibration	Comment
pH (pH)	7.08	7.01	7.01	Pass
pH (pH)	3.98	4.00	4.00	Pass
ORP (mV)	238	225	225	Pass
Conductivity (mS/cm)	0.000	0.000	0.000	Pass
Conductivity (mS/cm)	0.578	0.718	0.718	Pass
Conductivity (mS/cm)	5.16	6.67	6.67	Pass
Conductivity (mS/cm)	46.5	58.6	58.6	Pass
Turbidity (NTU)	0.0	0.0	0.0	Pass
Turbidity (NTU)	7.3	8.0	8.0	Pass
Turbidity (NTU)	83.7	80.0	80.0	Pass
Turbidity (NTU)	450	400	400	Pass
D.O. zero (mg/L)	0.15	0.00	0.00	Pass
D.O. span (mg/L)	12.56mg/L @ 19.8°C	9.32mg/L @19.8°C	9.32mg/L @19.8°C	Pass
Temperature (°C)	19.93	19.0	19.0	Pass

Sensors:

pH Glass Electrode	pH Ref Electrode	ORP Electrode	DO Electrode
133271	WD69NXBC	HKWFKRBS	U57ECOUL

Comments:

MAKE SURE the pH reference electrode is refilled with soln #330 regularly. If the #330 soln solidifies inside the pH reference electrode, remove the liquid junction cap (flat black rubber cap with wick in the middle) and rinse out the old solution with distilled water. Then refill with fresh HORIBA soln # 330 and refit the liquid junction cap. Please read the notes on pH maintenance.

Calibration carried out by:

Tim Adams

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HORIBA U-50 & U-10 Series Water Quality Meters

IMPORTANT INFORMATION
REGARDING pH MAINTENANCE
(all operators of this equipment should read this note)

The pH reference electrode (the one with the flat black rubber cap with a dot in the middle about the size of a 5 cent coin) should be topped up regularly with potassium chloride (KCl) #330 internal electrolyte solution which is supplied with the U-50 equipment. Peel back the flat black rubber cap (liquid junction cap) by placing a fingernail under the edge and remove it. Then pour the #330 solution directly into the reservoir. Any excess may be washed off when the cap is replaced.

In the centre of the flat black rubber cap is a small porous wick (liquid junction) which allows the electrolyte to pass from the reference electrode into the sample. If this wick becomes clogged with dirt it will restrict the flow of electrolyte solution and adversely affect pH measurement.

If only the tip of the wick is clogged it is possible to push the wick further through the rubber cap and cut off say 1mm of the wick with a sharp blade to remove the dirty section.

The liquid junction cap is a replacement part and supplied in packs of two (2) . How often this needs changing will depend on the nature of the samples being measured. Water with oil or grease or high levels of suspended solids will clog the liquid junction (wick) more quickly than clean water samples.

If the reference solution in the chamber is not topped up regularly, the KCl solution may solidify or crystallize inside the chamber . This can be removed using a cotton bud, but be careful not to bend the pin which protrudes from the base of the reference electrode . When the old KCl solution has been removed , refill it with fresh KCl soln. Alternatively, the inside of the chamber can be rinsed out with distilled or deionised water using a laboratory wash bottle. DO NOT UNSCREW the whole pH reference electrode to do this simple maintenance .

It is a good idea to completely replace the internal electrolyte solution in the reference tip every 2-3 months. If this is done regularly then the KCl solution will not solidify and you should simply be able to remove the liquid junction cap, invert the probe and all the liquid will pour out. Then refill the reference electrode with fresh solution #330.

pH Glass Electrode

The pH glass electrode is the second part of the pH system. The pH glass electrode should be kept clean and moist during storage to maintain accurate readings and fast response time. The small black plastic storage cap on the pH glass electrode should be removed prior to use. After use, place a couple of drops of pH electrode storage soln or clean tap water in the small plastic cap and place the cap over the glass electrode.

The pH glass electrode will deteriorate more quickly if it is allowed to stay dry for long periods (weeks-months).

HORIBA Service Centre

Water Quality Meters

Australia

TEL: 1800 021 083

SERVICE & CALIBRATION REPORT
Water Quality Meter

Customer Details:	Job Number	Date
Gamuda Berhad Lvl 8, 60 Station Street Parramatta NSW 2150 Attn: Hala Abdelhadi	240741	30/07/2024

Instrument Model:	Instrument Serial Number:
HORIBA U-52/2m Multi-Parameter Water Quality Meter	L0H0MJB2 2015

Fault Report

Requires service/calibration

Repairs Carried Out

Replaced DO membrane. Replaced pH glass electrode. Refilled pH reference electrode. Cleaned all sensors (turbidity dirty). Re-calibrated all sensors as follows:

Calibration (in accordance with manufacturer's specifications):

Parameter - unit	Before Calibration	Calibration Value	After calibration	Comment
pH (pH)	6.92	7.01	7.01	Pass
pH (pH)	3.95	4.00	4.00	Pass
ORP (mV)	225	225	225	Pass
Conductivity (mS/cm)	0.000	0.000	0.000	Pass
Conductivity (mS/cm)	0.715	0.718	0.718	Pass
Conductivity (mS/cm)	6.62	6.67	6.67	Pass
Conductivity (mS/cm)	58.1	58.6	58.6	Pass
Turbidity (NTU)	0.0	0.0	0.0	Pass
Turbidity (NTU)	5.7	8.0	8.0	Pass
Turbidity (NTU)	83.1	80.0	80.0	Pass
Turbidity (NTU)	419	400	400	Pass
D.O. zero (mg/L)	0.00	0.00	0.00	Pass
D.O. span (mg/L)	7.78mg/L @ 21°C	9.12mg/L @21°C	9.12mg/L @21°C	Pass
Temperature (°C)	21.36°C	21.4°C	21.4°C	Pass

Sensors:

pH Glass Electrode	pH Ref Electrode	ORP Electrode	DO Electrode
(old) 242180	T02S53XH	YUCPLKWL	8N00GFBE
(new) 404050			

Comments:

MAKE SURE the pH reference electrode is refilled with HORIBA soln #330 regularly. If the #330 soln solidifies inside the pH reference electrode, remove the liquid junction cap (flat black rubber cap with wick in the middle) and rinse out the old solution with distilled water. Then refill with fresh HORIBA soln # 330 and refit the liquid junction cap. Please read the notes on pH maintenance.

Calibration carried out by:

Tony Fincher

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SERVICE & CALIBRATION REPORT
Water Quality Meter

Customer Details:	Job Number	Date
Gamuda Berhad Lvl 8, 60 Station Street Parramatta NSW 2150 Attn: Hala Abdelhadi	240741	30/07/2024

Instrument Model:	Instrument Serial Number:
HORIBA U-52/2m Multi-Parameter Water Quality Meter	L0H0MJB2 2015

Fault Report

Requires service/calibration

Repairs Carried Out

Replaced DO membrane. Replaced pH glass electrode. Refilled pH reference electrode. Cleaned all sensors (turbidity dirty). Re-calibrated all sensors as follows:

Calibration (in accordance with manufacturer's specifications):

Parameter - unit	Before Calibration	Calibration Value	After calibration	Comment
pH (pH)	6.92	7.01	7.01	Pass
pH (pH)	3.95	4.00	4.00	Pass
ORP (mV)	225	225	225	Pass
Conductivity (mS/cm)	0.000	0.000	0.000	Pass
Conductivity (mS/cm)	0.715	0.718	0.718	Pass
Conductivity (mS/cm)	6.62	6.67	6.67	Pass
Conductivity (mS/cm)	58.1	58.6	58.6	Pass
Turbidity (NTU)	0.0	0.0	0.0	Pass
Turbidity (NTU)	5.7	8.0	8.0	Pass
Turbidity (NTU)	83.1	80.0	80.0	Pass
Turbidity (NTU)	419	400	400	Pass
D.O. zero (mg/L)	0.00	0.00	0.00	Pass
D.O. span (mg/L)	7.78mg/L @ 21°C	9.12mg/L @21°C	9.12mg/L @21°C	Pass
Temperature (°C)	21.36°C	21.4°C	21.4°C	Pass

Sensors:

pH Glass Electrode	pH Ref Electrode	ORP Electrode	DO Electrode
(old) 242180	T02S53XH	YUCPLKWL	8N00GFBE
(new) 404050			

Comments:

MAKE SURE the pH reference electrode is refilled with HORIBA soln #330 regularly. If the #330 soln solidifies inside the pH reference electrode, remove the liquid junction cap (flat black rubber cap with wick in the middle) and rinse out the old solution with distilled water. Then refill with fresh HORIBA soln # 330 and refit the liquid junction cap. Please read the notes on pH maintenance.

Calibration carried out by:

Tony Fincher

AUSTRALIAN SCIENTIFIC PTY LTD

11 McDougall Street, Kotara, NSW, 2289

TEL: 1800 021 083

E-mail: sales@austscientific.com.au **www.austscientific.com.au**

SERVICE & CALIBRATION REPORT
Water Quality Meter

Customer Details:	Job Number	Date
Gamuda Berhad (t/a Gamuda Australia Branch) Level 8/60 Station Street Parramatta NSW 2150 Attn: Hala Abedelhadi	240774	9/07/2024

Instrument Model:	Instrument Serial Number:
HORIBA U-52/2m Multi-Parameter Water Quality Meter	S48X0M7A 2021

Fault Report

Requires service/calibration.

Repairs Carried Out

Replaced DO membrane and refilled pH reference electrode. Re-calibrated all sensors as follows:

Calibration (in accordance with manufacturer's specifications):

Parameter - unit	Before Calibration	Calibration Value	After calibration	Comment
pH (pH)	7.08	7.01	7.01	Pass
pH (pH)	3.98	4.00	4.00	Pass
ORP (mV)	238	225	225	Pass
Conductivity (mS/cm)	0.000	0.000	0.000	Pass
Conductivity (mS/cm)	0.578	0.718	0.718	Pass
Conductivity (mS/cm)	5.16	6.67	6.67	Pass
Conductivity (mS/cm)	46.5	58.6	58.6	Pass
Turbidity (NTU)	0.0	0.0	0.0	Pass
Turbidity (NTU)	7.3	8.0	8.0	Pass
Turbidity (NTU)	83.7	80.0	80.0	Pass
Turbidity (NTU)	450	400	400	Pass
D.O. zero (mg/L)	0.15	0.00	0.00	Pass
D.O. span (mg/L)	12.56mg/L @ 19.8°C	9.32mg/L @19.8°C	9.32mg/L @19.8°C	Pass
Temperature (°C)	19.93	19.0	19.0	Pass

Sensors:

pH Glass Electrode	pH Ref Electrode	ORP Electrode	DO Electrode
133271	WD69NXBC	HKWFKRBS	U57ECOUL

Comments:

MAKE SURE the pH reference electrode is refilled with soln #330 regularly. If the #330 soln solidifies inside the pH reference electrode, remove the liquid junction cap (flat black rubber cap with wick in the middle) and rinse out the old solution with distilled water. Then refill with fresh HORIBA soln # 330 and refit the liquid junction cap. Please read the notes on pH maintenance.

Calibration carried out by:

Tim Adams

AUSTRALIAN SCIENTIFIC PTY LTD

11 McDougall Street, Kotara, NSW, 2289

TEL: 1800 021 083

E-mail: sales@austscientific.com.au **www.austscientific.com.au**

SERVICE & CALIBRATION REPORT
Water Quality Meter

Customer Details:	Job Number	Date
Gamuda Berhad (t/a Gamuda Australia Branch) Level 8/60 Station Street Parramatta NSW 2150 Attn: Hala Abedelhadi	240773	9/07/2024

Instrument Model:	Instrument Serial Number:
HORIBA U-52/2m Multi-Parameter Water Quality Meter	YMNSJK0F 2021

Fault Report

Requires service/calibration. Control unit battery cover broken and needs replacing.

Repairs Carried Out

Replaced DO membrane and refilled pH reference electrode. Replaced damaged battery cover. Re-calibrated all sensors as follows:

Calibration (in accordance with manufacturer's specifications):

Parameter - unit	Before Calibration	Calibration Value	After calibration	Comment
pH (pH)	6.72	7.01	7.01	Pass
pH (pH)	3.91	4.00	4.00	Pass
ORP (mV)	234	225	225	Pass
Conductivity (mS/cm)	0.000	0.000	0.000	Pass
Conductivity (mS/cm)	0.720	0.718	0.718	Pass
Conductivity (mS/cm)	6.48	6.67	6.67	Pass
Conductivity (mS/cm)	57.5	58.6	58.6	Pass
Turbidity (NTU)	0.0	0.0	0.0	Pass
Turbidity (NTU)	0.0	8.0	8.0	Pass
Turbidity (NTU)	96.1	80.0	80.0	Pass
Turbidity (NTU)	412	400	400	Pass
D.O. zero (mg/L)	0.18	0.00	0.00	Pass
D.O. span (mg/L)	11.09mg/L @ 19.8°C	9.32mg/L @19.8°C	9.32mg/L @19.8°C	Pass
Temperature (°C)	19.27	19.0	19.0	Pass

Sensors:

pH Glass Electrode	pH Ref Electrode	ORP Electrode	DO Electrode
133288	WD69NXBC	S6H1F5CC	UPCGGWJ0

Comments:

MAKE SURE the pH reference electrode is refilled with soln #330 regularly. If the #330 soln solidifies inside the pH reference electrode, remove the liquid junction cap (flat black rubber cap with wick in the middle) and rinse out the old solution with distilled water. Then refill with fresh HORIBA soln # 330 and refit the liquid junction cap. Please read the notes on pH maintenance.

Calibration carried out by:

Tim Adams

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Attachment 2 – Tabulated Data

	SW01 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24 (New Location)	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024		31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	358873	Not Tested	365389	367012	369151	370423
WQO	pH	pH Units	7.0 - 8.5		7.51	7.99	7.32	7.67	8.08	7.69	7.86	Unsafe access	7.21	7.62	6.82	7.49
	Electrical Conductivity	mS/cm V	NA		5.06	1.5	20.6	14.6	5.7	0.344	2.74		21	6.37	16.4	5.63
	Turbidity	NTU	0.5 - 10		7.4	32.5	50.9	3.5	0.5	41	5		9.5	11.9	42.8	19.9
	DO %	%	80-110		24.3	42.3	19.7	35.7	33.2	97	67.4		1.75	56.9	19.9	51.7
	Oil & Grease	Visual	None Visible		None visible	None visible	None visible	None visible	None visible	None visible	non visible		non visible	not visible	none visible	none visible
	pH (Lab)	Units	7.0 - 8.5		7.3	7.9	7	7.5	7.5	7.2	7.3		7.2	7.2	7.2	7.5
	Electrical Conductivity (Lab)	uS/cm	NA		4.7	15	18	13	5.7	0.33	2600		18000	7100	19000	5500
	Turbidity (Lab)	NTU	0.5 - 10		3	5.6	5.4	3	3.6	15	4.9		2.4	5.6	9.1	5
	Observations (Tide/Physical Appearance)				Stagnant; very dirty; rubbish-laden	Clear; no flow; shallow water level; rubbish-laden	Sampled ex-situ; turbid; still; organic odour	Incoming tide	Low tide; outflowing; clear; rubbish	Flowing, turbid	Clear, slow flowing, very low turbidity, no odour or sheen.		green haze, slow current, organic odour	Biochemical odour, sediment heavy, going into high tide, moderate current, grey cloudy haze and turbid	Grey, milky, turbid, organics and litter floating in water, no odour or sheen.	Milky, no odour, no sheen
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.91		0.68	0.16	0.73	0.49	0.36	0.48	0.26		0.41	0.15	0.36	0.38
	Nitrate (as N)	mg/L	2.4		0.21	0.57	0.02	0.42	0.038	0.94	0.23		0.02	0.056	<0.005	0.05
	Nitrite (as N)	mg/L	-		0.049	0.051	0.044	0.05	0.047	0.025	0.023		<0.005	0.011	<0.005	0.08
	Total Oxidised Nitrogen	mg/L	2.4		0.259	0.621	0.064	0.47	0.085	0.965	0.2		0.02	0.07	<0.005	0.1
	Phosphorus	mg/L	0.03		0.2	0.1	0.3	0.2	0.2	0.3	0.05		0.2	0.1	0.3	0.2
	Total Nitrogen (as N)*	mg/L	2.4		1.5	1.3	1.5	1.3	1	2.7	0.9		0.9	0.8	1.9	1
	Heavy Metals															
	Arsenic (dissolved)	ug/L	-		2	1	1	1	<1	2	<1		1	<1	1	1
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	1	<1	<1	<1		<1	<1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004		<0.001	<0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<1		<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		2	2	<1	2	<1	6	2		<1	<1	<1	1
	Iron (dissolved)	ug/L	-		110	80	530	80	110	250	70		340	150	180	240
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	1	<1		<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		270	30	350	120	100	15	31		91	130	140	160
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		1	2	1	<1	1	1	1		1	<1	2	1
	Zinc (dissolved)	ug/L	8		16	14	35	8	10	45	16		11	9	38	9
	PFAS Parameters															
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01		<0.0004	<0.0004	<0.0004	<0.0004
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.02	<0.01	<0.01	0.01	<0.01	<0.01		0.0041	0.0029	0.0029	0.0087
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.03	0.03	0.02	0.03	0.02	<0.01	<0.01		0.0059	0.005	0.0052	0.0098
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.11	0.13	0.07	0.08	0.06	0.04	<0.01		0.0095	0.0062	0.0096	0.028
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5		<0.5	<0.5	<0.5	<0.5
	Benzo(b,j+k)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2		<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1		<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	62	<50		<50	<50	79	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	62	<50		<50	<50	79	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	220	<50		<50	<50	850	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	160	<100		<100	<100	610	<100
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100		<100	<100	160	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	66	<50		<50	<50	73	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	190	<50		<50	<50	780	<50
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	120	<100		<100	<100	360	<100
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100		<100	<100	350	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10		<10	35	<10	20
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10		<10	35	<10	20
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10		<10	35	<10	18
	Volatile Organics															
	Benzene	ug/L	500		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	Toluene	ug/L	180		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1

SW02 Sampling Results		Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024		31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	358873	Not tested unsafe access	365289	367012	369151	370423
WQO	pH	pH Units	7.0 - 8.5		7.31	7.23	7.45	7.55	7.73	7.79	7.85		7.47	7.63	6.91	7.56
	Electrical Conductivity	mS/cm V	NA		14.2	32.4	38	38.8	42.9	0.329	17.5		34.5	22.6	34.6	20.7
	Turbidity	NTU	0.5 - 10		3.4	13.3	3.3	0	0	60.5	0		9	10.6	1.4	13.8
	DO%	%	80-110		13.3	18.5	28.3	43.7	52.3	70.9	57.8		35.7	49.2	53.9	79.8
	Oil & Grease	Visual	None Visible		None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	not visible		None visible	Not visible	Not visible	Not visible
	pH (lab)	Units	7.0 - 8.5		7.2	7.6	7.3	7.3	7.3	7.5	7.2		7.4	7.4	7.5	7.5
	Electrical Conductivity (lab)	uS/cm	NA		12000	5500	21000	30000	30000	350	18000		31 000	24000	34000	20000
	Turbidity (lab)	NTU	0.5 - 10		3	3.3	1.6	4	1.8	46	1.4		2	22	2.9	4.2
	Observations (Tide/Physical Appearance)				Low flow; relatively clear; fish present	Clear; high water level; slow flow; cloudy tinge on surface	Slow flow; clear; odourless	Outflowing; clear water	Low tide; outflowing; clear	Flowing, turbid	green/brown, slow flowing, slight sheen and slightly turbid.		no odour, high tide, slight green haze, slow current	Brown olive murky haze, going into high tide, moderate current, organic odour, turbid	Greenish brown, high tide, slow flow, organics, mangroves, no odour or sheen	Moderately flowing, organic debris, slightly turbid, some sheen, no odour
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.91		0.38	0.09	0.37	0.11	0.22	0.22	0.11		0.1	0.018	0.03	0.044
	Nitrate (as N)	mg/L	2.4*		0.4	0.5	0.16	0.24	0.17	0.89	0.21		0.056	<0.005	0.05	0.29
	Nitrite (as N)	mg/L	-		0.055	0.047	0.041	0.028	0.024	0.025	0.021		0.011	<0.005	0.008	0.028
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.455	0.547	0.201	0.268	0.194	0.915	0.2		0.07	<0.005	0.06	0.3
	Phosphorus	mg/L	0.03		0.1	0.08	0.1	0.08	0.09	0.2	0.07		0.2	0.2	0.2	0.2
	Total Nitrogen (as N)*	mg/L	2.4*		1	1.3	1	0.6	0.6	1.7	0.9		0.6	0.7	1	0.7
	Heavy Metals															
	Arsenic (dissolved)	ug/L	-		2	1	<1	1	1	2	<1		1	1	2	2
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	1	<1	<1	<1		<1	1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004		<0.001	0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1								<1		<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		1	2	<1	1	<1	5	2		1	<1	1	2
	Iron (dissolved)	ug/L	-		70	100	90	50	60	200	60		40	40	20	50
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	1	<1		<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		140	47	230	67	84	11	28		51	120	87	64
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		<1	2	1	<1	1	<1	<1		1	1	1	1
	Zinc (dissolved)	ug/L	8		18	20	28	11	22	35	28		16	21	21	27
	PFAS Parameters															
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02		<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01		0.0004	0.0005	<0.0004	0.001
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.01	0.01	<0.01	<0.01	0.01	<0.01		0.0038	0.0044	0.0035	0.0069
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.02	0.02	0.02	0.02	<0.01	<0.01		0.0056	0.0063	0.0052	0.0072
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.07	0.08	0.04	0.03	0.03	0.03	0.01		0.0097	0.01	0.012	0.019
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5		<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2		<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1		<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1		<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	<50	<50		<50	<50	<50	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	<50	<50		<50	<50	<50	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50		<50	110	190	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	<100	<100		<100	110	190	<100
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100		<100	<100	<100	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	<50	<50		<50	<50	77	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	<50	<50		<50	<50	310	<50
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	<100	<100		<100	<100	110	<100
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100		<100	<100	120	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	23		<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	23		<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	23		<10	<10	<10	<10
	Volatile Organics															
	Benzene	ug/L	500		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1
	Toluene	ug/L	180		<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1

	SW03 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	30/09/2024	31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	358873	362947	365289	367012	369151	370423
WQO	pH	pH Units	7.0 - 8.5		7.45	7.48	7.44	7.8	8	7.74	7.76	7.19	7.67	8.04	7.35	7.68
	Electrical Conductivity	mS/cm V	NA		29.2	12.8	35.2	38.5	31.4	0.538	43.4	5.75	37.6	24.7	43.4	26.2
	Turbidity	NTU	0.5 - 10		6.4	48.3	4.7	2.9	1.6	80.8	0	19	7.3	2.2	0.7	10.9
	DO%	%	80-110		45.6	47.3	36.3	61.5	57.4	108.8	101.3	108.1	120.5	75.6	80.7	85.9
	Oil & Grease	Visual	None Visible		None Visible	Slight sheen	Slight sheen	Slight sheen	None Visible	None Visible	not visible	not visible	not visible	None visible	None visible	None Visible
	pH (lab)	Units	7.0 - 8.5		7.2	7.5	7.3	7.6	7.3	7.4	7.4	6.9	7.6	7.7	7.6	7.6
	Electrical Conductivity (lab)	uS/cm	NA		26	12	26	35	25	0.55	26000	5500	34000	27000	39000	26000
	Turbidity (lab)	NTU	0.5 - 10		5.7	15	2.4	4.1	2.5	26	28	9.4	3.8	2	3.2	4.3
	Observations (Tide/Physical Appearance)		-		Steady flow; clear; low tide	Cloudy; flowing; slight sheen; low tide	Flowing; falling tide; slight sheen; sediment	Outflowing; clear	Scum; rising tide; flowing	Fast flowing, slightly turbid	Green-grey, slow flow, low turbidity, no odour, organic/foam layer on surface.	Green-grey, slow flow, low turbidity, no odour, organic/foam layer on surface.	no odour, green haze, high into low, slow current	High tide, no odour, strong current, murky brown haze, turbid, oxygenated	Moderate flow, green-brown, slightly turbid, organics present within water,no odour or sheen.	Flowing, light debris, sheen, biosheen, no odour
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.91		0.25	0.13	0.24	0.066	0.42	0.49	0.039	0.13	0.033	0.029	0.039	0.026
	Nitrate (as N)	mg/L	2.4*		0.22	0.39	0.19	0.13	0.29	1	0.18	0.41	0.057	<0.005	<0.005	0.16
	Nitrite (as N)	mg/L	-		0.023	0.025	0.026	0.011	0.028	0.031	0.017	0.006	<0.005	<0.005	<0.005	0.013
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.243	0.415	0.216	0.141	0.318	1.031	0.2	0.4	0.06	<0.005	<0.005	0.2
	Phosphorus	mg/L	0.03		0.1	0.09	0.07	0.07	0.08	0.3	0.08	0.1	0.1	<0.1	0.1	0.1
	Total Nitrogen (as N)*	mg/L	2.4*		0.8	1	0.7	0.5	0.8	2.4	0.7	0.9	0.4	0.4	0.5	0.6
	Heavy Metals															
	Arsenic (dissolved)	ug/L	-		2	2	1	1	<1	2	<1	1	1	1	2	1
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	1	<1	2	3	<1	<1	2	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.001	<0.001	0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		<1	2	<1	1	<1	6	2	3	1	1	2	1
	Iron (dissolved)	ug/L	-		20	80	30	<10	20	300	20	240	20	30	20	40
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	1	<1	2	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		67	61	82	40	99	19	38	62	48	81	51	53
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		<1	1	1	<1	<1	1	1	<1	<1	<1	<1	<1
	Zinc (dissolved)	ug/L	8		12	24	30	7	13	47	29	40	15	13	10	13
	PFAS Parameters															
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.001	0.0006	0.0007	<0.0004	0.0009
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	0.02	<0.01	<0.01	0.01	0.02	<0.01	0.016	0.004	0.0045	0.016	0.006
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.0092	0.0052	0.0056	0.0028	0.0052
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.03	0.05	0.03	0.03	0.02	0.03	0.02	0.012	0.01	0.0088	0.0079	0.02
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	100	<50	<50	<50	<50	100	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	100	<100	<100	<100	<50	100	<100
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	54	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	50	<50
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C29-C36	ug/L	-		<50	<50	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Volatile Organics															
	Benzene	ug/L	500		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	ug/L	180		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

	SW04 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Freshwater Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Monitoring Point Removed
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	30/09/2024	
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	Not Tested	358873	362947	
WQO	pH	pH Units	6.5 - 8.5		7.79	8.03	7.7	8.01	8.18	N/A	8.5	7.67	
	Electrical Conductivity	mS/cm V	0.125 - 2.2		0.468	0.564	0.879	0.788	1.89	N/A	0.423	0.318	
	Turbidity	NTU	6.0-50.0		29	73.6	38.1	43.5	16.2	N/A	26.9	18.1	
	DO%	%	85-110		112.4	63.6	61	64.4	67.4	N/A	68.4	112.1	
	Oil & Grease	Visual	None Visible		None Visible	None Visible	None Visible	None Visible	None Visible	N/A	not visible	Not visible	
	pH (Lab)	Units	6.5 - 8.5		7.9	7.9	8	7.9	7.8	N/A	7.8	7.4	
	Electrical Conductivity (Lab)	mS/cm	0.125 - 2.2		0.43	0.41	0.88	0.66	1.8	N/A	0.44	0.31	
	Turbidity (lab)	NTU	6.0-50.0		8.6	15	7.8	13	5	N/A	14	14	
	Observations (Tide/Physical Appearance)		-		Steady flow; brown; murky	Slightly tubid; flowing; plume from pipe	Flowing; odourless; visible sediment in the water	Sediment plume coming from stormwater drain	Flowing; brown; sediment coming from drain	Sample not collected, area flooded	Brown-grey, moderate flow. turbid/sediment plume noted coming from stormwater drain / adjacent construction site.	moderate flow.	
Toxicants	**Nutrients**												
	Ammonia (as N)	mg/L	0.9		0.19	0.058	0.51	0.5	0.045	N/A	0.037	0.091	
	Nitrate (as N)	mg/L	2.4		0.66	0.63	0.54	0.78	0.44	N/A	0.39	0.61	
	Nitrite (as N)	mg/L	-		0.028	0.023	0.054	0.1	0.022	N/A	0.019	0.013	
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.688	0.653	0.594	0.88	0.462	N/A	0.4	0.62	
	Phosphorus	mg/L	0.035		0.08	<0.05	<0.05	0.08	0.5	N/A	0.04	0.1	
	Total Nitrogen (as N)*	mg/L	2.4		1	1	3.6	2.3	0.7	N/A	0.9	1	
	Heavy Metals												
	Arsenic (dissolved)	ug/L	13		<1	<1	<1	<1	<1	N/A	<1	<1	
	Cadmium (dissolved)	ug/L	0.2		<0.1	<0.1	<0.1	<0.1	0.2	N/A	<0.1	<0.1	
	Chromium (dissolved)	ug/L	1		<1	<1	<1	<1	<1	N/A	<1	<1	
	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	N/A	<0.001	<0.001	
	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.004	<0.001	
	Cobalt (dissolved)	ug/L	1.4							N/A	<1	<1	
	Copper (dissolved)	ug/L	1.4		2	3	2	3	<1	N/A	4	6	
	Iron (dissolved)	ug/L	-		540	310	200	210	50	N/A	240	230	
	Lead (dissolved)	ug/L	3.4		1	<1	<1	<1	<1	N/A	<1	<1	
	Manganese (dissolved)	ug/L	1900		89	35	26	59	53	N/A	11	16	
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	<0.05	<0.05	<0.05	N/A	<0.05	<0.05	
	Nickel (dissolved)	ug/L	11		1	1	<1	<1	<1	N/A	<1	<1	
	Zinc (dissolved)	ug/L	8		10	9	8	7	5	N/A	32	39	
	PFAS Parameters												
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	N/A	<0.02	<0.0004	
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	N/A	<0.01	0.0007	
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.01	0.01	0.01	0.01	0.02	N/A	<0.01	0.018	
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.01	0.02	0.02	0.02	N/A	<0.01	0.013	
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.03	0.02	0.03	0.05	0.03	N/A	0.02	0.013	
	Polycyclic Aromatic Hydrocarbons												
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Benzo(a)pyrene	ug/L	0.1		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	N/A	<0.5	<0.5	
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	N/A	<0.2	<0.2	
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	<0.1	
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	N/A	<0.1	<0.1	
	Total Recoverable Hydrocarbons												
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	N/A	<1	<1	
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	<50	
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	<50	
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	<50	
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	<100	
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	<100	
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	<50	
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	<50	
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	<100	
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	<100	
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	N/A	<10	<10	
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	N/A	<10	<10	
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	N/A	<10	<10	
	Volatile Organics												
	Benzene	ug/L	950		<1	<1	<1	<1	<1	N/A	<1	<1	
	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	N/A	<1	<1	
	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	N/A	<2	<2	
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	N/A	<1	<1	
	Toluene	ug/L	-		<1	<1	<1	<1	<1	N/A	<1	<1	

	SW05 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Freshwater Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Monitoring Point Removed
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	Not Tested	358873	
WQO	pH	pH Units	6.5 - 8.5		7.78	7.81	7.77	7.79	8.4	N/A	8.64	
	Electrical Conductivity	mS/cm V	0.125 - 2.2		0.461	0.427	0.872	0.729	2	N/A	0.407	
	Turbidity	NTU	6.0-50.0		22	84.6	39.8	15.2	9.4	N/A	8.6	
	DO%	%	85-110		59	63.1	54.5	55.6	82.1	N/A	68.9	
	Oil & Grease	Visual	None Visible		None visible	None visible	None visible	None visible	None visible	N/A	not visible	
	pH	Units	6.5 - 8.5		7.8	7.8	7.9	7.8	7.9	N/A	7.7	
	Electrical Conductivity	mS/cm)	0.125 - 2.2		0.44	0.41	0.88	0.67	1.9	N/A	0.41	
	Turbidity	NTU	6.0-50.0		16	13	3.6	4.9	4.2	N/A	7.6	
	Observations (Tide/Physical Appearance)		-		Steady flow; brown; murky	Slightly turbid; flowing; brown colour	Flowng; brown odourless; visible sediment	Brown; flowing slow; rubbish	Flowing; brown; sediment coming from drain	N/A	Moderate flow, brown-grey, slightly turbid, no odour or sheen.	
Toxicants	**Nutrients**											
	Ammonia (as N)	mg/L	0.9		0.17	0.085	0.51	0.6	0.048	N/A	0.018	
	Nitrate (as N)	mg/L	2.4		0.65	0.47	0.54	0.85	0.44	N/A	0.33	
	Nitrite (as N)	mg/L	-		0.026	0.018	0.053	0.11	0.023	N/A	0.017	
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.676	0.488	0.593	0.96	0.463	N/A	0.3	
	Phosphorus	mg/L	0.035		0.08	0.07	0.06	0.09	0.1	N/A	0.09	
	Total Nitrogen (as N)*	mg/L	2.4		1	0.9	3.5	2.4	0.7	N/A	0.8	
	Heavy Metals											
	Arsenic (dissolved)	ug/L	13*		<1	<1	<1	<1	<1	N/A	<1	
	Cadmium (dissolved)	ug/L	0.2		<0.1	<0.1	<0.1	<0.1	<0.1	N/A	<0.1	
	Chromium (dissolved)	ug/L	0.001		<1	<1	<1	<1	<1	N/A	<1	
	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	N/A	<0.001	
	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	N/A	<0.004	
	Cobalt (dissolved)	ug/L	1.4		-	-	-	-	-	N/A	<1	
	Copper (dissolved)	ug/L	1.4		3	2	2	3	<1	N/A	3	
	Iron (dissolved)	ug/L	-		480	310	190	190	40	N/A	170	
	Lead (dissolved)	ug/L	3.4		<1	<1	<1	<1	<1	N/A	<1	
	Manganese (dissolved)	ug/L	1900		77	34	54	52	40	N/A	8	
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	<0.05	<0.05	<0.05	N/A	<0.05	
	Nickel (dissolved)	ug/L	11		<1	<1	<1	<1	<1	N/A	<1	
	Zinc (dissolved)	ug/L	8		9	7	8	3	<1	N/A	17	
	PFAS Parameters											
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	N/A	<0.02	
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	N/A	<0.01	
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.01	0.02	0.01	0.02	N/A	<0.01	
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	<0.01	0.02	0.02	0.02	N/A	0.01	
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.04	0.03	0.03	0.05	0.04	N/A	0.02	
	Polycyclic Aromatic Hydrocarbons											
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	N/A	<0.1	
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Benzo(a)pyrene	ug/L	0.1		<1	<1	<1	<1	<1	N/A	<0.1	
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	N/A	<0.5	
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	N/A	<0.2	
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	N/A	<0.1	
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	N/A	<0.1	
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	N/A	<0.1	
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	N/A	<0.1	
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	N/A	<0.1	
	Total Recoverable Hydrocarbons											
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	N/A	<1	
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	N/A	<50	
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	N/A	<100	
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	N/A	<10	
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	N/A	<10	
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	N/A	<10	
	Volatile Organics											
	Benzene	ug/L	950		<1	<1	<1	<1	<1	-	<1	
	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	N/A	<1	
	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	N/A	<2	
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	N/A	<1	
	Toluene	ug/L	-		<1	<1	<1	<1	<1	N/A	<1	

	SW06 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	30/09/2024	31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	Not Tested	358873	362947	365289	367012	369151	370423
WQO	pH	pH Units	7.0 - 8.5		7.39	7.38	7.64	7.8	8.06	-	8.09	7.23	7.66	7.45	7.42	7.62
	Electrical Conductivity	mS/cm V	NA		18.9	24.8	31.6	38.7	37.2	-	36.4	15.7	31.5	16.1	34.6	14.5
	Turbidity	NTU	0.5 - 10		9.4	114	18.6	4.8	5.7	-	5.7	15.6	10.5	4.3	7.3	11.9
	DO%	%	80-110		52.9	58.9	69	55.8	72	-	80.8	102.9	49.5	35.3	70.4	80.3
	Oil & Grease	Visual	None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	none visible	none visible	none visible	none visible	none visible	None visible
	pH (Lab)	Units	7.0 - 8.5		7.3	7.4	7.5	7.5	7.6	-	7.6	7.1	7.7	7.5	7.7	7.5
	Electrical Conductivity (Lab)	uS/cm	NA		15	23	25	35	36	-	32000	15000	30000	28000	27000	15000
	Turbidity (Lab)	NTU	0.5 - 10		5.4	4.9	2.2	11	4.4	-	5	7.3	6.7	5.4	4.2	4.4
	Observations (Tide/Physical Appearance)		-		Steady flow; brown; murky; tide falling; ferry arrived during monitoring stirring up water	Slightly turbid; brown; low tide	Ferry docking at wharf; clear; odourless; small amount of oil visible	Low tide, readings taken ex-situ; turbid	Low tide; brown; scum on upstream side of weir	Sample not collected, area flooded	Moderate flow,brown-grey, slightly turbid, no odour or sheen.	moderate flow, no clear discolouratio n	organic odour, murky green haze, strong current, high tide	Bubbley / oxygenated, high tide, moderate current, murky brown colour, turbid,	Moderate flow, slightly turbid, organics present within water,no odour or sheen.	Slight sheen, high level, no odour, clear brown, some debris
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.91		0.29	0.27	0.25	0.2	0.13	-	0.027	0.19	0.031	0.12	0.016	0.18
	Nitrate (as N)	mg/L	2.4*		0.37	0.21	0.19	0.17	0.063	-	0.063	0.33	0.02	0.02	<0.005	0.4
	Nitrite (as N)	mg/L	-		0.023	0.02	0.025	0.021	<0.005	-	0.007	0.008	<0.005	0.006	<0.005	0.016
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.393	0.23	0.215	0.191	0.063	-	0.07	0.3	0.02	0.02	0.007	0.4
	Phosphorus	mg/L	0.03		0.09	0.07	0.08	0.1	0.09	-	0.08	0.1	0.1	0.1	0.2	0.1
	Total Nitrogen (as N)*	mg/L	2.4*		0.8	0.7	1.2	0.6	0.5	-	0.5	0.8	0.4	0.6	1.3	0.7
	Heavy Metals															
	Arsenic (dissolved)	ug/L	-		1	1	<1	1	1	-	<1	<1	1	2	2	1
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		1	<1	1	<1	<1	-	2	2	1	1	2	2
	Iron (dissolved)	ug/L	-		110	70	40	<10	<10	-	20	120	30	50	20	110
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		81	56	45	36	42	-	21	54	40	140	80	62
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		<1	1	<1	<1	<1	-	<1	<1	<1	<1	1	<1
	Zinc (dissolved)	ug/L	8		8	7	9	5	<1	-	14	32	8	12	16	9
	PFAS Parameters															
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	-	<0.02	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	-	<0.01	0.001	0.0004	0.0005	<0.0004	0.001
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	0.0065	0.0062	0.0047	0.0043	0.0085
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.01	<0.01	0.01	0.01	<0.01	-	<0.01	0.007	0.0046	0.004	0.0034	0.0041
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.02	0.02	0.01	0.01	<0.01	-	<0.01	0.01	0.01	0.0053	0.009	0.014
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	-	97	<50	<50	<50	<50	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	-	97	<50	<50	<50	<50	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	160	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	160	<100
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	51	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	-	<50	140	<50	<50	160	<50
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	-	<100	140	<100	<100	100	<100
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10
	Volatile Organics															
	Benzene	ug/L	500		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
	Toluene	ug/L	180		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1

	SW07 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	30/09/2024	31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	358873	362947	365298	367012	369151	370423
WQO	pH	pH Units	6.5 - 8.5		7.62	7.69	7.19	7.82	7.95	7.08	8.17	7.75	8.66	7.07	8.19	7.68
	Electrical Conductivity	mS/cm V	0.125 - 2.2		0.875	0.86	0.821	0.967	0.934	0.344	0.666	0.384	1.57	1.62	0.482	1.86
	Turbidity	NTU	6.0-50.0		2.8	28.3	3.3	6.7	5.2	23.6	126	15.5	5.7	6.2	0.3	3.4
	DO%	%	85-110		46.7	52.4	41.1	53.1	63.7	73	55.8	105.4	26.92	22.8	17	58.2
	Oil & Grease	Visual	None Visible		None visible	None visible	None visible	None visible	None visible	None visible	None visible	none visible	none visible	none visible	none visible	None visible
	pH (Lab)	Units	6.5- 8.5		7.8	8	7.9	7.8	7.9	7.6	7.8	7.4	7.7	7.5	7.5	7.6
	Electrical Conductivity (Lab)	mS/cm	0.125 - 2.2		0.82	0.8	0.84	0.98	1.1	0.35	0.65	0.31	1.4	2	4.5	1.9
	Turbidity (Lab)	NTU	6.0-50.0		3.4	3.7	4.3	2.8	2.1	21	13	6.8	3.1	3.5	4	2.3
	Observations (Tide/Physical Appearance)		-		Very low flow; floating debris; water relatively clear	Clear; slow flow; alot of rubbish downstream	Still, clear and odourless	Still; clear	Still; clear; odourless; rubbish in water	Flowing, turbid	Grey / brown, stagnant, no flow, slight organic sheen, organic material.	Grey / brown, stagnant, no flow, slight organic sheen, organic material.	no odour, no flow/ current, clear, shallow	No odour, slight brown murk but most clear, slow current, little litter	Stagnent/no flow, grey brown,slightly turbid, no odour or sheen.	Fairly stagnant, clear, no sheen
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.9		0.12	0.034	0.057	0.053	0.036	0.033	0.009	0.039	1.7	0.91	6.9	0.81
	Nitrate (as N)	mg/L	2.4		0.35	0.33	0.26	0.34	0.24	1.2	0.27	0.57	0.54	0.11	0.4	0.43
	Nitrite (as N)	mg/L	-		0.02	0.022	0.015	0.011	0.006	0.013	0.019	<0.005	0.031	0.021	0.053	0.12
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.37	0.352	0.275	0.351	0.246	1.213	0.3	0.57	0.58	0.1	0.5	0.56
	Phosphorus	mg/L	0.035		0.1	0.09	0.09	0.07	0.1	0.1	0.18	0.1	0.06	0.08	0.1	0.2
	Total Nitrogen (as N)*	mg/L	2.4		0.7	0.8	0.7	0.6	0.5	1.5	0.6	1	2.3	2.4	8.2	1.5
	Heavy Metals															
	Arsenic (dissolved)	ug/L	13*		1	1	<1	<1	<1	2	<1	<1	<1	<1	1	2
	Cadmium (dissolved)	ug/L	0.2		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	1		<1	<1	<1	<1	<1	1	<1	<1	<1	1	<1	1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.001	<0.001	0.001	<0.001	0.001
	Cobalt (dissolved)	ug/L	1.4		-	-	-	-	-	-	<1	<1	<1	<1	2	<1
	Copper (dissolved)	ug/L	1.4		2	1	<1	1	<1	6	2	5	5	4	<1	4
	Iron (dissolved)	ug/L	-		150	200	240	150	240	440	90	190	220	350	190	360
	Lead (dissolved)	ug/L	3.4		<1	<1	<1	<1	<1	2	<1	1	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	1900		110	100	61	48	30	13	73	32	140	130	580	110
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	11		<1	1	<1	<1	<1	1	2	<1	<1	<1	1	3
	Zinc (dissolved)	ug/L	8		9	9	7	<1	<1	29	34	40	10	21	15	21
	PFAS Parameters															
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0004	<0.0004	<0.0004	<0.0004	0.0004
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.01	0.01	0.01	0.01	<0.01	<0.01	0.0056	0.0023	0.0047	0.0054	0.011
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.0085	0.0023	0.0041	0.0046	0.0067
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.03	0.02	0.02	0.02	0.01	0.01	0.03	0.0081	0.0066	0.0061	0.011	0.025
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.1		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	59	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	59	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	270	120
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	210	120
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	67	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	220	120
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	160	120
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	24	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	24	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Volatile Organics															
	Benzene	ug/L	950		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	ug/L	-		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

	SW08 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	30/09/2024	31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	358873	362947	365289	367013	369151	370423
WQO	pH	pH Units	7.0 - 8.5		7.1	7.26	7.55	7.52	7.64	7.72	7.72	7.31	7.82	7.72	6.93	7.41
	Electrical Conductivity	mS/cm V	NA		19	12.8	27.8	36.7	25.9	0.384	24.2	2.7	28.9	20.7	31.4	17.6
	Turbidity	NTU	0.5 - 10		4	50.5	7.9	-	0.2	104	2.6	17.7	12.4	4.8	2.5	15.3
	DO%	%	80-110		19.9	38	33.7	42.1	39.1	74.7	57.8	123.7	21.7	62.7	41.5	95.7
	Oil & Grease	Visual	None Visible		None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	none visible	none visible	none visible	none visible	none visible	None visible
	pH (Lab)	Units	7.0 - 8.5		7.2	7.4	7.2	7.3	7.3	7.4	7.3	7.1	7.5	7.5	7.3	7.5
	Electrical Conductivity (Lab)	us/cm	NA		9800	12000	25000	28000	31000	360	24000	2600	26000	22000	32000	17000
	Turbidity (Lab)	NTU	0.5 - 10		7.4	19	3	2.6	3.1	35	3.4	12	3.1	5.4	4.2	4.2
	Observations (Tide/Physical Appearance)		-		Slow flow; green; murky	Cloudy; steady flow; medium water level	Flowing; man fishing at location; clear; odourless	Outflowing; clear	Low tide; flowing; clear	Flowing, turbid	Green/brown, slow flowing, no odour or sheen - Rosehill WTP discharging at the time of sampling.	Green/ brown, slow flowing, no odour or sheen.	no odour, murky olive haze, somewhat clear, slow current	Murky grey-brown haze, turbid, no odour, going into high tide, moderate current, sediment heavy	Clear-slightly green, slow flowing, no odour or sheen. Rosehill WTP discharging at the time of sampling	Flowing, light debris, no odour, no sheen
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.91		0.25	0.17	0.22	0.15	0.24	0.3	0.08	0.18	0.19	0.011	0.083	0.023
	Nitrate (as N)	mg/L	2.4*		0.45	0.39	0.23	0.22	0.21	1	0.21	0.4	0.088	0.02	0.03	0.29
	Nitrite (as N)	mg/L	-		0.033	0.021	0.024	0.015	0.018	0.022	0.017	0.008	0.006	<0.005	0.006	0.037
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.483	0.411	0.254	0.235	0.228	1.022	0.2	0.4	0.09	0.02	0.04	0.3
	Phosphorus	mg/L	0.03		0.09	0.09	0.09	0.09	0.07	0.3	0.1	0.1	0.2	0.1	0.2	0.3
	Total Nitrogen (as N)*	mg/L	2.4*		0.9	1	0.8	0.6	0.7	2.4	0.9	0.9	0.6	0.5	0.6	1.1
	Heavy Metals															
	Arsenic (dissolved)	ug/L	-		2	2	1	1	1	2	<1	1	1	1	2	2
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	<1	2	<1	2	1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.001	0.002	0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		2	2	1	1	<1	7	2	2	<1	1	1	2
	Iron (dissolved)	ug/L	-		180	260	20	50	20	370	30	440	70	40	30	60
	Lead (dissolved)	ug/L	4.4		1	2	<1	<1	<1	2	<1	2	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		110	64	74	70	77	13	44	70	62	140	120	85
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		1	1	1	<1	1	1	1	<1	<1	<1	1	1
	Zinc (dissolved)	ug/L	8		26	28	26	13	18	42	26	27	14	17	22	27
	PFAS Parameters															
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.0009	<0.0004	0.0005	<0.0004	0.0008
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	<0.01	0.01	<0.01	0.01	0.01	<0.01	0.0065	0.0037	0.0052	0.0043	0.0074
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.03	0.01	0.02	0.02	0.01	<0.01	<0.01	0.0079	0.0053	0.0068	0.0057	0.0085
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.07	0.04	0.04	0.03	0.02	0.02	0.01	0.011	0.011	0.01	0.014	0.022
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	52	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	52	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	240	310
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	190	210
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	60	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	180	180
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	120	180
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Volatile Organics															
	Benzene	ug/L	500		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	ug/L	180		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

	SW09 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	9/08/2024	30/09/2024	31/10/2024	21/11/2024	16/12/2024	14/01/2025
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	358873	362947	365289	367012	369151	370423
WQO	pH	pH Units	7.0 - 8.5		N/A	8.16	8.19	8.08	8.22	7.8	7.71	7.46	7.99	7.94	6.95	7.52
	Electrical Conductivity	mS/cm V	NA		N/A	1.88	3.02	5.78	4.31	0.417	6.77	0.243	6.75	5.03	37	9.34
	Turbidity	NTU	0.5 - 10		N/A	27.1	14.8	1.7	0.9	70.7	8.5	18.7	12.1	5.8	11.8	8.7
	DO %	%	80-110		N/A	63.1	49.7	60.7	53.3	103.8	85.4	47.7	121.5	48.5	45.2	110.3
	Oil & Grease	Visual	None Visible		N/A	Sheen visible	Sheen visible	Sheen visible	Sheen visible	None Visible	none visible	none visible	none visible	none visible	none visible	None visible
	pH (Lab)	Units	7.0 - 8.5		N/A	8.1	8.1	8	7.9	7.6	8	7.3	8	7.8	7.3	7.6
	Electrical Conductivity (Lab)	uS/cm	NA		N/A	1600	2900	5100	3600	350	5800	220	6400	5700	37000	9800
	Turbidity (Lab)	NTU	0.5 - 10		N/A	2.1	3.5	2.7	2.6	23	9.2	7.3	5.1	12	5	4
	Observations (Tide/Physical Appearance)				N/A	Clear; sheen visible; organic odour	Oil slick visible; still; organic odour	Flowing; sheen; fairly clear	Scum; sheen on water; lots of rubbish	flowing, turbid	Green/brown, stagnant/no flow, slight organic sheen.	Green/brown, stagnant/no flow	no odour, dark brown murky haze, going into high tide, slow current	High tide, moderate current, white sheen, organic odour, turbid, sediment heavy, murky brown haze, oxygenated	Greyish-geen, slightly turbid, rubbish/ liter floating in water, no odour or sheen.	No odour, debris present, clear, moderately flowing
Toxicants	**Nutrients**															
	Ammonia (as N)	mg/L	0.91		N/A	0.039	0.17	0.26	0.33	0.057	0.028	0.047	<0.005	0.16	0.13	0.26
	Nitrate (as N)	mg/L	2.4*		N/A	0.77	1.2	1.9	1.1	1.1	0.93	0.55	<0.005	0.07	0.03	0.25
	Nitrite (as N)	mg/L	-		N/A	0.051	0.068	0.094	0.077	0.019	0.033	<0.005	<0.005	0.01	<0.005	0.091
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		N/A	0.821	1.268	1.994	1.177	1.119	0.96	0.56	<0.005	0.08	0.04	0.3
	Phosphorus	mg/L	0.03		N/A	0.05	0.09	0.06	0.07	0.1	0.08	0.1	0.2	0.2	0.2	0.2
	Total Nitrogen (as N)*	mg/L	2.4*		N/A	1.3	2	2.3	1.6	1.5	1.4	0.9	0.8	1.1	0.9	0.9
	Heavy Metals															
	Arsenic (dissolved)	ug/L	-		N/A	1	<1	<1	<1	2	<1	<1	1	<1	2	2
	Cadmium (dissolved)	ug/L	0.7		N/A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		N/A	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		N/A	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		N/A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1		N/A	-	-	-	-	-	<1	<1	<1	<1	<1	1
	Copper (dissolved)	ug/L	1.3		N/A	2	2	3	1	6	5	6	1	3	1	1
	Iron (dissolved)	ug/L	-		N/A	60	20	20	60	250	70	100	70	80	40	160
	Lead (dissolved)	ug/L	4.4		N/A	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		N/A	100	62	76	74	10	92	26	94	210	110	300
	Mercury (dissolved)	ug/L	0.1		N/A	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		N/A	2	2	<1	2	<1	2	<1	1	1	1	1
	Zinc (dissolved)	ug/L	8		N/A	16	18	11	16	59	18	39	4	16	25	14
	PFAS Parameters															
	8:2 FTSA	ug/L	-		N/A	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		N/A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0004	<0.0004	<0.0004	<0.0004	0.0005
	Perfluorooctanoic acid (PFOA)	ug/L	220		N/A	0.02	0.02	0.02	0.02	<0.01	0.01	0.0062	0.01	0.0085	0.0034	0.013
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		N/A	0.02	0.04	0.04	0.02	<0.01	0.02	0.0035	0.0074	0.0089	0.0042	0.0097
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		N/A	0.04	0.08	0.06	0.05	0.02	0.02	0.0064	0.015	0.015	0.009	0.031
	Polycyclic Aromatic Hydrocarbons															
	Acenaphthene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		N/A	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		N/A	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		N/A	Nil	Nil	Nil	Nil	Nil	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons															
	Naphthalene	ug/L	-		N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	<50	<50	52	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	<50	<50	52	<50
	TRH >C10-C40 (total)*	ug/L	-		N/A	<50	<50	<50	<50	<50	110	<50	<50	<50	210	<50
	TRH >C16-C34	ug/L	-		N/A	<100	<100	<100	<100	<100	110	<100	<100	<100	160	<100
	TRH >C34-C40	ug/L	-		N/A	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C10-C14	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	<50	<50	62	<50
	TRH C10-C36 (Total)	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	<50	<50	170	<50
	TRH C15-C28	ug/L	-		N/A	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	<100
	TRH C29-C36	ug/L	-		N/A	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C6-C10	ug/L	-		N/A	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		N/A	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		N/A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Volatile Organics															
	Benzene	ug/L	500		N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	80		N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		N/A	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	ug/L	180		N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

SW10 Sampling Results		Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	9/08/2024	30/09/2024	31/11/2024	21/11/2024	16/12/2024	14/01/2025
Analyte				Lab Report No.	358873	362947	365289	367012	369151	370423
WQO	pH	pH Units	6.5 - 8.5		8.1	7.34	7.05	7.35	7.93	8.17
	Electrical Conductivity	mS/cm V	0.125 - 2.2		0.57	0.21	0.459	0.248	4.6	0.502
	Turbidity	NTU	6.0-50.0		0	16.5	7.6	7.8	1.5	14.3
	DO%	%	85-110		46.4	69.5	19.6	28.8	36.6	157.3
	Oil & Grease	Visual	None Visible		none visible	not visible	not visible	none visible	none visible	None visible
	pH (Lab)	Units	6.5 - 8.5		7.5	7.1	7.4	7.2	7.2	7.1
	Electrical Conductivity (Lab)	mS/cm	0.125 - 2.2		0.4	0.19	0.43	0.28	0.36	0.35
	Turbidity (Lab)	NTU	6.0-50.0		7.2	4.6	3.9	23	3.2	3.1
	Observations (Tide/Physical Appearance)		-		Grey / brown, stagnant, no flow, slight organic sheen, organic material.	Grey / brown, stagnant, no flow, organic material.	no odour, no flow/ current, brown murky haze,	no odour, sediment heavy, no current, lily pads, little litter present	Grey, very slow flow, slight organic sheen,no odur	Stagnant, no odour, relatively clear, no sheen
Toxicants	**Nutrients**									
	Ammonia (as N)	mg/L	0.9		0.056	0.085	0.53	0.22	0.42	0.11
	Nitrate (as N)	mg/L	2.4		0.079	0.69	<0.005	0.03	0.05	<0.005
	Nitrite (as N)	mg/L	-		0.014	0.007	<0.005	0.005	0.016	<0.005
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.09	0.7	<0.005	0.03	0.06	<0.005
	Phosphorus	mg/L	0.035		0.4	0.1	0.3	0.3	0.2	0.4
	Total Nitrogen (as N)*	mg/L	2.4		0.9	1.1	1.7	1	1.1	0.8
	Heavy Metals									
	Arsenic (dissolved)	ug/L	13*		<1	<1	<1	1	<1	3
	Cadmium (dissolved)	ug/L	0.2		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	1		<1	<1	<1	<1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	0.0033		<0.004	<0.001	<0.001	<0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1.4		<1	<1	<1	1	<1	2
	Copper (dissolved)	ug/L	1.4		3	4	1	2	1	2
	Iron (dissolved)	ug/L	-		670	150	660	1000	990	600
	Lead (dissolved)	ug/L	3.4		<1	<1	1	<1	<1	<1
	Manganese (dissolved)	ug/L	1900		130	29	130	200	110	230
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	0.06	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	11		2	<1	<1	1	1	2
	Zinc (dissolved)	ug/L	8		38	43	6	9	25	16
	PFAS Parameters									
	8:2 FTSA	ug/L	-		<0.02	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.0004	<0.0004	<0.0004	<0.0004	0.0007
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	0.0048	0.011	0.0078	0.0085	0.013
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		<0.01	0.0038	0.0059	0.0045	0.0049	0.0064
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.02	0.005	0.0073	0.0095	0.011	0.024
	Polycyclic Aromatic Hydrocarbons									
	Acenaphthene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	16		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons									
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	50	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	50	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	600	<50	270	<50
	TRH >C16-C34	ug/L	-		<100	<100	460	<100	220	<100
	TRH >C34-C40	ug/L	-		<100	<100	130	<100	<100	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	56	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	540	<50	320	<50
	TRH C15-C28	ug/L	-		<100	<100	290	<100	150	<100
	TRH C29-C36	ug/L	-		<100	<100	250	<100	100	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10
	Volatile Organics									
	Benzene	ug/L	950		<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1
	Toluene	ug/L	-		<1	<1	<1	<1	<1	<1

SW11 Sampling Results		Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
				Sample Date	9/08/2024	30/09/2024	31/10/2024	21/11/2024	16/12/2024	14/01/2025
Analyte				Lab Report No.	358873	362947	365289	367012	369151	370423
WQO	pH	pH Units	7.0 - 8.5		7.8	7.24	7.64	7.53	7.47	7.68
	Electrical Conductivity	mS/cm V	NA		36.4	16.3	36.7	26.6	34.3	13.5
	Turbidity	NTU	0.5 - 10		0	13.9	3.7	1.3	0.7	6
	DO%	%	80-110		67.5	78.8	57.1	41.4	68.2	85.4
	Oil & Grease	Visual	None Visible		none visible	none visible	none visible	none visible	none visible	None visible
	pH (lab)	Units	7.0 - 8.5		7.4	7.1	7.5	7.4	7.5	7.5
	Electrical Conductivity (lab)	uS/cm	NA		34000	16000	34000	29000	29000	14000
	Turbidity (lab)	NTU	0.5 - 10		2.4	7.2	0.7	2.2	2.4	3.8
	Observations (Tide/Physical Appearance)		-		Moderate flow, brown grey colour, slightly turbid,no odour or sheen.	NA	chlorine / chemical odour, somewhat clear, high tide, strong current, green / brown haze	No odour, murky olive haze, vrakish, turbid, bubbly/oxygenated, high tide, moderate current	Moderate flow, green-brown, slightly turbid, organics present within water,no odour or sheen.	Slight sheen, high water level, no odour, minor bark
Toxicants	**Nutrients**									
	Ammonia (as N)	mg/L	0.91		0.048	0.15	0.048	0.11	0.09	0.16
	Nitrate (as N)	mg/L	2.4*		0.1	0.33	0.076	0.069	0.07	0.45
	Nitrite (as N)	mg/L	-		0.025	<0.005	<0.005	0.01	0.01	0.017
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.1	0.3	0.08	0.08	0.08	0.5
	Phosphorus	mg/L	0.03		0.06	0.09	0.1	0.1	0.2	0.1
	Total Nitrogen (as N)*	mg/L	2.4*		0.4	0.7	0.4	0.5	0.7	0.7
	Heavy Metals									
	Arsenic (dissolved)	ug/L	-		<1	<1	1	2	2	1
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium (trivalent)	mg/L	27		<0.004	<0.001	<0.001	<0.001	<0.001	<0.001
	Cobalt (dissolved)	ug/L	1		<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		2	2	1	1	2	2
	Iron (dissolved)	ug/L	-		20	120	10	30	20	110
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		16	54	29	110	63	53
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		<1	<1	<1	<1	1	<1
	Zinc (dissolved)	ug/L	8		17	21	13	12	15	10
	PFAS Parameters									
	8:2 FTSA	ug/L	-		<0.02	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	6:2 FTSA	ug/L	-		<0.01	0.001	<0.0004	0.0004	<0.0004	0.001
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	0.006	0.0042	0.0043	0.0048	0.0087
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		<0.01	0.007	0.0045	0.0037	0.003	0.0043
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.01	0.0082	0.0052	0.0056	0.009	0.014
	Polycyclic Aromatic Hydrocarbons									
	Acenaphthene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	ug/L	0.01		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	ug/L	0.01		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b&j)fluoranthene	ug/L	-		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	ug/L	1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1.2.3-cd)pyrene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	ug/L	50		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	ug/L	0.6		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total PAH*	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Total Recoverable Hydrocarbons									
	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	55	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	55	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	250	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	200	<100
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	67	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	310	<50
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	120	<100
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	120	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10
	Volatile Organics									
	Benzene	ug/L	500		<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1
	Toluene	ug/L	180		<1	<1	<1	<1	<1	<1

Attachment 3 – Laboratory Certificates

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CERTIFICATE OF ANALYSIS 358873

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
Attention	Lochlan Browne
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**GAB/WTP/C&C/MSD/542 WTP-Surface Water Monitoring**
Number of Samples	11 Water
Date samples received	12/08/2024
Date completed instructions received	12/08/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	19/08/2024
Date of Issue	19/08/2024

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Results Approved By
Amanda Chui, LC/Air Toxics Supervisor
Giovanni Agosti, Group Technical Manager
Jenny He, Senior Chemist
Liam Timmins, Organics Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
TRH C_6 - C_9	µg/L	<10	23	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	23	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	23	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	101	98	97	98	100
Surrogate Toluene-d8	%	97	96	96	97	96
Surrogate 4-Bromofluorobenzene	%	96	94	94	94	97

vTRH(C6-C10)/BTEXN in Water						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	92	93	98	100	96
Surrogate Toluene-d8	%	95	96	95	97	96
Surrogate 4-Bromofluorobenzene	%	79	92	94	93	90

vTRH(C6-C10)/BTEXN in Water		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	99
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	92

svTRH (C10-C40) in Water						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	93	93	116	102	105

svTRH (C10-C40) in Water						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	97	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	97	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	100	<50	<50	<50	<50
Surrogate o-Terphenyl	%	107	84	83	111	90

svTRH (C10-C40) in Water		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	90

PAHs in Water						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	84	75	77	72	81

PAHs in Water						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	15/08/2024	15/08/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	76	78	66	96	80

PAHs in Water		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	82

Miscellaneous Inorganics						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Date analysed	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
pH	pH Units	7.3	7.2	7.4	7.8	7.7
Electrical Conductivity	µS/cm	2,600	18,000	26,000	440	410
Total Suspended Solids	mg/L	12	10	47	<5	17
Turbidity	NTU	4.9	1.4	28	14	7.6
Salinity as NaCl *	mg/L	1,700	11,000	17,000	280	260
Total Nitrogen in water	mg/L	0.9	0.9	0.7	0.9	0.8
TKN in water	mg/L	0.6	0.6	0.5	0.4	0.4
NOx as N in water	mg/L	0.2	0.2	0.2	0.4	0.3
Phosphate as P in water	mg/L	0.02	0.02	0.01	<0.005	<0.005
Organic Nitrogen as N	mg/L	0.4	0.5	0.5	0.4	0.4
Nitrate as N in water	mg/L	0.23	0.21	0.18	0.39	0.33
Nitrite as N in water	mg/L	0.023	0.021	0.017	0.019	0.017
Ammonia as N in water	mg/L	0.26	0.11	0.039	0.037	0.018
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.002	0.002	0.004	0.001	0.002
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	<0.004	<0.004	0.008	<0.004	<0.004
Total Phosphorus	mg/L	0.05	0.07	0.08	0.04	0.09

Miscellaneous Inorganics						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Date analysed	-	09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
pH	pH Units	7.6	7.8	7.3	8.0	7.5
Electrical Conductivity	µS/cm	32,000	650	24,000	5,800	400
Total Suspended Solids	mg/L	16	16	16	38	14
Turbidity	NTU	5.0	13	3.4	9.2	7.2
Salinity as NaCl *	mg/L	20,000	420	15,000	3,700	260
Total Nitrogen in water	mg/L	0.5	0.6	0.9	1.4	0.9
TKN in water	mg/L	0.4	0.3	0.7	0.4	0.8
NOx as N in water	mg/L	0.07	0.3	0.2	0.96	0.09
Phosphate as P in water	mg/L	0.007	0.04	0.01	0.007	0.02
Organic Nitrogen as N	mg/L	0.4	0.3	0.6	0.4	0.7
Nitrate as N in water	mg/L	0.063	0.27	0.21	0.93	0.079
Nitrite as N in water	mg/L	0.007	0.019	0.017	0.033	0.014
Ammonia as N in water	mg/L	0.027	0.009	0.080	0.028	0.056
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.001	0.001	0.003	<0.001	<0.001
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Total Phosphorus	mg/L	0.08	0.18	0.10	0.08	0.40

Miscellaneous Inorganics		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date prepared	-	09/08/2024
Date analysed	-	09/08/2024
pH	pH Units	7.4
Electrical Conductivity	µS/cm	34,000
Total Suspended Solids	mg/L	8
Turbidity	NTU	2.4
Salinity as NaCl *	mg/L	22,000
Total Nitrogen in water	mg/L	0.4
TKN in water	mg/L	0.3
NOx as N in water	mg/L	0.1
Phosphate as P in water	mg/L	0.03
Organic Nitrogen as N	mg/L	0.2
Nitrate as N in water	mg/L	0.10
Nitrite as N in water	mg/L	0.025
Ammonia as N in water	mg/L	0.048
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.004
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.001
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	<0.004
Total Phosphorus	mg/L	0.06

All metals in water-dissolved						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Aluminium-Dissolved	μg/L	20	20	<10	250	60
Arsenic-Dissolved	μg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	μg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	μg/L	<1	<1	3	<1	<1
Cobalt-Dissolved	μg/L	<1	<1	<1	<1	<1
Copper-Dissolved	μg/L	2	2	2	4	3
Iron-Dissolved	μg/L	70	60	20	240	170
Mercury-Dissolved	μg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Lead-Dissolved	μg/L	<1	<1	<1	<1	<1
Manganese-Dissolved	μg/L	31	28	38	11	8
Nickel-Dissolved	μg/L	1	<1	1	<1	<1
Zinc-Dissolved	μg/L	16	28	29	32	17

All metals in water-dissolved						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Aluminium-Dissolved	μg/L	20	10	<10	10	20
Arsenic-Dissolved	μg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	μg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	μg/L	<1	<1	2	<1	<1
Cobalt-Dissolved	μg/L	<1	<1	<1	<1	<1
Copper-Dissolved	μg/L	2	2	2	5	3
Iron-Dissolved	μg/L	20	90	30	70	670
Mercury-Dissolved	μg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Lead-Dissolved	μg/L	<1	<1	<1	<1	<1
Manganese-Dissolved	μg/L	21	73	44	92	130
Nickel-Dissolved	μg/L	<1	2	<1	2	2
Zinc-Dissolved	μg/L	14	34	26	18	38

All metals in water-dissolved		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date prepared	-	14/08/2024
Date analysed	-	14/08/2024
Aluminium-Dissolved	µg/L	20
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Cobalt-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Iron-Dissolved	µg/L	20
Mercury-Dissolved	µg/L	<0.05
Lead-Dissolved	µg/L	<1
Manganese-Dissolved	µg/L	16
Nickel-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	17

All metals in water - total						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Aluminium-Total	µg/L	210	40	710	650	290
Arsenic-Total	µg/L	<1	<1	2	<1	<1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Total	µg/L	1	<1	11	<1	<1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Copper-Total	µg/L	4	2	8	5	5
Iron-Total	µg/L	490	160	1,600	640	640
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Lead-Total	µg/L	2	<1	8	2	2
Manganese-Total	µg/L	40	33	62	42	52
Nickel-Total	µg/L	2	1	2	1	1
Zinc-Total	µg/L	40	29	57	27	23

All metals in water - total						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Aluminium-Total	µg/L	150	470	120	240	90
Arsenic-Total	µg/L	<1	1	1	<1	1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Total	µg/L	1	2	3	1	<1
Cobalt-Total	µg/L	<1	<1	<1	1	2
Copper-Total	µg/L	2	4	3	14	4
Iron-Total	µg/L	320	930	500	1,200	2,200
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Lead-Total	µg/L	1	2	3	2	2
Manganese-Total	µg/L	32	90	56	94	600
Nickel-Total	µg/L	1	2	1	2	2
Zinc-Total	µg/L	19	50	35	76	30

All metals in water - total		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date prepared	-	14/08/2024
Date analysed	-	14/08/2024
Aluminium-Total	µg/L	70
Arsenic-Total	µg/L	<1
Cadmium-Total	µg/L	<0.1
Chromium-Total	µg/L	<1
Cobalt-Total	µg/L	<1
Copper-Total	µg/L	3
Iron-Total	µg/L	140
Mercury-Total	µg/L	<0.05
Lead-Total	µg/L	<1
Manganese-Total	µg/L	32
Nickel-Total	µg/L	<1
Zinc-Total	µg/L	22

PFAS in Waters Short						
Our Reference		358873-1	358873-2	358873-3	358873-4	358873-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/08/2024	12/08/2024	12/08/2024	12/08/2024	12/08/2024
Date analysed	-	12/08/2024	12/08/2024	12/08/2024	12/08/2024	12/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	0.01	<0.01	0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.01	0.02	0.02	0.02
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	103	98	104	99	103
Surrogate $^{13}C_2$ *PFOA*	%	100	98	99	99	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	72	71	72	68	70
Extracted ISTD $^{13}C_4$ *PFOS*	%	79	80	77	80	76
Extracted ISTD $^{13}C_4$ *PFOA*	%	89	86	85	89	89
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	100	70	67	95	90
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	120	91	82	116	106
Total Positive PFHxS & PFOS	µg/L	<0.01	0.01	0.03	0.02	0.03
Total Positive PFOA & PFOS	µg/L	<0.01	0.01	0.02	0.02	0.02
Total Positive PFAS	µg/L	<0.01	0.01	0.03	0.02	0.03

PFAS in Waters Short						
Our Reference		358873-6	358873-7	358873-8	358873-9	358873-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/08/2024	12/08/2024	12/08/2024	12/08/2024	12/08/2024
Date analysed	-	12/08/2024	12/08/2024	12/08/2024	12/08/2024	12/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	0.02	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.03	0.01	0.02	0.02
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	104	103	99	98	97
Surrogate $^{13}C_2$ *PFOA*	%	105	101	100	105	100
Extracted ISTD $^{18}O_2$ *PFHxS*	%	68	67	72	73	72
Extracted ISTD $^{13}C_4$ *PFOS*	%	73	75	82	80	81
Extracted ISTD $^{13}C_4$ *PFOA*	%	79	90	86	87	90
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	58	104	66	84	103
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	80	122	84	104	132
Total Positive PFHxS & PFOS	µg/L	<0.01	0.03	0.01	0.04	0.02
Total Positive PFOA & PFOS	µg/L	<0.01	0.03	0.01	0.04	0.02
Total Positive PFAS	µg/L	<0.01	0.03	0.01	0.05	0.02

PFAS in Waters Short		
Our Reference		358873-11
Your Reference	UNITS	SW11
Date Sampled		09/08/2024
Type of sample		Water
Date prepared	-	12/08/2024
Date analysed	-	12/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	96
Surrogate $^{13}C_2$ *PFOA*	%	102
Extracted ISTD $^{18}O_2$ *PFHxS*	%	72
Extracted ISTD $^{13}C_4$ *PFOS*	%	82
Extracted ISTD $^{13}C_4$ *PFOA*	%	84
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	60
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	81
Total Positive PFHxS & PFOS	µg/L	0.01
Total Positive PFOA & PFOS	µg/L	0.01
Total Positive PFAS	µg/L	0.01

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			14/08/2024	2	14/08/2024	15/08/2024		14/08/2024	[NT]
Date analysed	-			15/08/2024	2	15/08/2024	16/08/2024		15/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	2	23	18	24	110	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	2	23	18	24	110	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	108	[NT]
Toluene	µg/L	1	Org-023	<1	2	<1	<1	0	109	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	109	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	111	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	111	[NT]
Naphthalene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	2	98	98	0	99	[NT]
Surrogate Toluene-d8	%		Org-023	97	2	96	96	0	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	2	94	95	1	101	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	14/08/2024	15/08/2024		[NT]	[NT]
Date analysed	-			[NT]	11	15/08/2024	16/08/2024		[NT]	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	[NT]	11	<10	<10	0	[NT]	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	[NT]	11	<10	<10	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	[NT]	11	<2	<2	0	[NT]	[NT]
o-xylene	µg/L	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Naphthalene	µg/L	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	11	99	99	0	[NT]	[NT]
Surrogate Toluene-d8	%		Org-023	[NT]	11	98	95	3	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	11	92	96	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	358873-2
Date extracted	-			14/08/2024	1	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	15/08/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	110	117
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	113	115
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	102
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	110	117
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	113	115
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	105
Surrogate o-Terphenyl	%		Org-020	115	1	93	87	7	114	119

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	9	14/08/2024	14/08/2024		[NT]	[NT]
Date analysed	-			[NT]	9	15/08/2024	15/08/2024		[NT]	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	9	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	9	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	9	<100	<100	0	[NT]	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	9	<50	<50	0	[NT]	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	9	<100	<100	0	[NT]	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	9	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	9	111	94	17	[NT]	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	358873-2
Date extracted	-			14/08/2024	1	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Date analysed	-			15/08/2024	1	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	74
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	80
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	85
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	73
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	80
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	71
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	72
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	68	73
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	77	1	84	83	1	84	119

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	358873-1
Date prepared	-			09/08/2024	1	09/08/2024	09/08/2024		09/08/2024	09/08/2024
Date analysed	-			09/08/2024	1	09/08/2024	09/08/2024		09/08/2024	09/08/2024
pH	pH Units		Inorg-001	[NT]	1	7.3	7.3	0	99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	2600	2600	0	101	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	12	[NT]		98	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	4.9	4.8	2	97	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	<1	1	1700	1700	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.9	[NT]		110	109
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.6	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.2	0.2	0	105	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.02	0.01	67	96	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.4	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.23	0.23	0	105	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.023	0.023	0	100	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.26	0.27	4	84	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	<0.001	<0.001	0	99	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.004	Inorg-118	<0.004	1	<0.004	[NT]		[NT]	[NT]
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.001	Inorg-118	<0.001	1	0.002	0.001	67	86	[NT]
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	0.004	Inorg-118	<0.004	1	<0.004	[NT]		[NT]	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	1	0.05	0.06	18	100	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	358873-2
Date prepared	-			[NT]	2	09/08/2024	09/08/2024		[NT]	09/08/2024
Date analysed	-			[NT]	2	09/08/2024	09/08/2024		[NT]	09/08/2024
pH	pH Units		Inorg-001	[NT]	2	7.2	[NT]		[NT]	[NT]
Electrical Conductivity	μS/cm	1	Inorg-002	[NT]	2	18000	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	2	10	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	2	1.4	[NT]		[NT]	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	[NT]	2	11000	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	2	0.9	0.8	12	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	2	0.6	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.2	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	2	0.02	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	2	0.5	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.21	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.021	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	2	0.11	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	2	<0.001	[NT]		[NT]	91
Trivalent Chromium, Cr^{3+}	mg/L	0.004	Inorg-118	[NT]	2	<0.004	[NT]		[NT]	[NT]
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.001	Inorg-118	[NT]	2	0.002	[NT]		[NT]	84
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	0.004	Inorg-118	[NT]	2	<0.004	[NT]		[NT]	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	[NT]	2	0.07	[NT]		[NT]	107

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	358873-6
Date prepared	-			[NT]	8	09/08/2024	09/08/2024		[NT]	09/08/2024
Date analysed	-			[NT]	8	09/08/2024	09/08/2024		[NT]	09/08/2024
pH	pH Units		Inorg-001	[NT]	8	7.3	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	8	24000	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	8	16	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	8	3.4	[NT]		[NT]	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	[NT]	8	15000	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	8	0.9	0.9	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	8	0.7	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	8	0.2	[NT]		[NT]	106
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	8	0.01	[NT]		[NT]	100
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	8	0.6	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	8	0.21	[NT]		[NT]	106
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	8	0.017	[NT]		[NT]	112
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	8	0.080	[NT]		[NT]	122
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	8	<0.001	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.004	Inorg-118	[NT]	8	<0.004	[NT]		[NT]	[NT]
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.001	Inorg-118	[NT]	8	0.003	[NT]		[NT]	[NT]
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	0.004	Inorg-118	[NT]	8	<0.004	[NT]		[NT]	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	[NT]	8	0.10	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	09/08/2024	09/08/2024		[NT]	[NT]
Date analysed	-			[NT]	11	09/08/2024	09/08/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	7.4	7.5	1	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	34000	34000	0	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	8	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	2.4	2.5	4	[NT]	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	[NT]	11	22000	22000	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	0.4	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	0.3	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.1	0.1	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.03	0.03	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	0.2	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.10	0.095	5	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.025	0.032	25	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.048	0.048	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.004	Inorg-118	[NT]	11	<0.004	[NT]		[NT]	[NT]
Hex Chromium, Cr^{6+} (total/unfiltered)	mg/L	0.001	Inorg-118	[NT]	11	0.001	0.001	0	[NT]	[NT]
Triv Chromium, Cr^{3+} (total/unfiltered)	mg/L	0.004	Inorg-118	[NT]	11	<0.004	<0.004	0	[NT]	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	[NT]	11	0.06	0.06	0	[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	358873-4
Date prepared	-			14/08/2024	3	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Date analysed	-			14/08/2024	3	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Aluminium-Dissolved	µg/L	10	Metals-022	<10	3	<10	<10	0	120	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	3	<1	<1	0	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	3	<0.1	<0.1	0	96	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	3	3	3	0	101	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	3	<1	<1	0	120	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	3	2	2	0	119	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	3	20	20	0	119	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	3	<0.05	<0.05	0	107	111
Lead-Dissolved	µg/L	1	Metals-022	<1	3	<1	<1	0	101	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	3	38	44	15	101	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	3	1	1	0	100	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	3	29	33	13	117	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	358873-8
Date prepared	-			14/08/2024	6	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Date analysed	-			14/08/2024	6	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Aluminium-Total	µg/L	10	Metals-022	<10	6	150	150	0	103	113
Arsenic-Total	µg/L	1	Metals-022	<1	6	<1	1	0	96	101
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	6	<0.1	<0.1	0	98	104
Chromium-Total	µg/L	1	Metals-022	<1	6	1	1	0	112	116
Cobalt-Total	µg/L	1	Metals-022	<1	6	<1	<1	0	107	109
Copper-Total	µg/L	1	Metals-022	<1	6	2	2	0	110	105
Iron-Total	µg/L	10	Metals-022	<10	6	320	340	6	110	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	6	<0.05	[NT]		116	[NT]
Lead-Total	µg/L	1	Metals-022	<1	6	1	1	0	104	87
Manganese-Total	µg/L	5	Metals-022	<5	6	32	32	0	105	103
Nickel-Total	µg/L	1	Metals-022	<1	6	1	1	0	110	108
Zinc-Total	µg/L	1	Metals-022	<1	6	19	19	0	106	104

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	14/08/2024	14/08/2024		[NT]	[NT]
Date analysed	-			[NT]	11	14/08/2024	14/08/2024		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	11	70	60	15	[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	11	<1	1	0	[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	11	3	3	0	[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	11	140	140	0	[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	11	<0.05	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	11	32	33	3	[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	11	<1	1	0	[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	11	22	22	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	358873-2
Date prepared	-			12/08/2024	1	12/08/2024	12/08/2024		12/08/2024	12/08/2024
Date analysed	-			12/08/2024	1	12/08/2024	12/08/2024		12/08/2024	12/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	102	115
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	96	102
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	102
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	97
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	110	99
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	102	1	103	99	4	98	97
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	102	1	100	104	4	100	104
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	100	1	72	66	9	96	64
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	101	1	79	78	1	104	77
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	108	1	89	85	5	106	82
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	115	1	100	98	2	105	70
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	145	1	120	112	7	118	95

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	12/08/2024	12/08/2024		[NT]	[NT]
Date analysed	-			[NT]	11	12/08/2024	12/08/2024		[NT]	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	[NT]	11	<0.01	<0.01	0	[NT]	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	[NT]	11	0.01	<0.01	0	[NT]	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	[NT]	11	<0.01	<0.01	0	[NT]	[NT]
6:2 FTS	µg/L	0.01	Org-029	[NT]	11	<0.01	<0.01	0	[NT]	[NT]
8:2 FTS	µg/L	0.02	Org-029	[NT]	11	<0.02	<0.02	0	[NT]	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	[NT]	11	96	94	2	[NT]	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	[NT]	11	102	100	2	[NT]	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	[NT]	11	72	65	10	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	[NT]	11	82	80	2	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	[NT]	11	84	86	2	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	[NT]	11	60	67	11	[NT]	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	[NT]	11	81	105	26	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Dissolved Metals: The preserved sample provided for #2 was not identified as either total or dissolved, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

Total Metals:
- The preserved sample provided for #2 was not identified as either total or dissolved, therefore the analysis was conducted from the unpreserved sample.
Note: there is a possibility some elements may be underestimated
- no unfiltered, preserved sample was received for #1, 3-11, therefore analysis was conducted from the unpreserved sample bottle.
Note: there is a possibility some elements may be underestimated.
- # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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CERTIFICATE OF ANALYSIS 362947

Client Details

Client	Gamuda Engineering
Attention	Scott Thompson
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**WTP - Surface Water Monitoring**
Number of Samples	8 Water
Date samples received	30/09/2024
Date completed instructions received	30/09/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	08/10/2024
Date of Issue	08/10/2024

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Results Approved By
Dragana Tomas, Senior Chemist
Jenny He, Senior Chemist
Sean McAlary, Senior Chemist
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	100	98	98	98
Surrogate Toluene-d8	%	100	98	101	99	98
Surrogate 4-Bromofluorobenzene	%	102	95	101	101	100

vTRH(C6-C10)/BTEXN in Water				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date extracted	-	04/10/2024	04/10/2024	04/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024
TRH C_6 - C_9	µg/L	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10
Benzene	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
o-xylene	µg/L	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	97	98
Surrogate Toluene-d8	%	98	96	98
Surrogate 4-Bromofluorobenzene	%	102	99	102

svTRH (C10-C40) in Water						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	140	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	140	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	150	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	150	<50	<50
Surrogate o-Terphenyl	%	81	70	80	91	63

svTRH (C10-C40) in Water				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date extracted	-	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	02/10/2024	02/10/2024	02/10/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50
Surrogate o-Terphenyl	%	86	77	82

PAHs in Water						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	90	75	90	92	73

PAHs in Water				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date extracted	-	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	02/10/2024	02/10/2024	03/10/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	91	84	85

Miscellaneous Inorganics						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Date analysed	-	30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
pH	pH Units	6.9	7.4	7.1	7.4	7.1
Electrical Conductivity	µS/cm	5,500	310	15,000	310	2,600
Turbidity	NTU	9.4	14	7.3	6.8	12
Total Suspended Solids	mg/L	<20	<20	20	13	<20
Salinity as NaCl*	g/L	3.6	0.2	9.6	0.2	1.7
Total Nitrogen in water	mg/L	0.9	1	0.8	1.0	0.9
NOx as N in water	mg/L	0.4	0.62	0.3	0.57	0.4
Nitrate as N in water	mg/L	0.41	0.61	0.33	0.57	0.40
Nitrite as N in water	mg/L	0.006	0.013	0.008	<0.005	0.008
Ammonia as N in water	mg/L	0.13	0.091	0.19	0.039	0.18
Phosphate as P in water	mg/L	0.080	0.05	0.054	0.060	0.074
TKN in water	mg/L	0.5	0.3	0.5	0.5	0.5
Organic Nitrogen as N	mg/L	0.4	0.3	0.3	0.4	0.3
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001

Miscellaneous Inorganics				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date prepared	-	30/09/2024	30/09/2024	30/09/2024
Date analysed	-	30/09/2024	30/09/2024	30/09/2024
pH	pH Units	7.3	7.1	7.1
Electrical Conductivity	µS/cm	220	190	16,000
Turbidity	NTU	7.3	4.6	7.2
Total Suspended Solids	mg/L	<10	<10	30
Salinity as NaCl*	g/L	0.2	0.1	10
Total Nitrogen in water	mg/L	0.9	1.1	0.7
NOx as N in water	mg/L	0.56	0.70	0.3
Nitrate as N in water	mg/L	0.55	0.69	0.33
Nitrite as N in water	mg/L	<0.005	0.007	<0.005
Ammonia as N in water	mg/L	0.047	0.085	0.15
Phosphate as P in water	mg/L	0.072	0.072	0.061
TKN in water	mg/L	0.4	0.4	0.3
Organic Nitrogen as N	mg/L	0.3	0.4	<0.2
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001

All metals in water-dissolved						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Aluminium-Dissolved	µg/L	30	300	30	70	50
Arsenic-Dissolved	µg/L	1	<1	<1	<1	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	3	6	2	5	2
Iron-Dissolved	µg/L	240	230	120	190	440
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	62	16	54	32	70
Nickel-Dissolved	µg/L	<1	<1	<1	<1	<1
Lead-Dissolved	µg/L	2	<1	<1	1	2
Zinc-Dissolved	µg/L	40	39	32	40	27

All metals in water-dissolved				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date prepared	-	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024
Aluminium-Dissolved	µg/L	80	60	30
Arsenic-Dissolved	µg/L	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	6	4	2
Iron-Dissolved	µg/L	100	150	120
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	26	29	54
Nickel-Dissolved	µg/L	<1	<1	<1
Lead-Dissolved	µg/L	1	<1	<1
Zinc-Dissolved	µg/L	39	43	21

All metals in water - total						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Aluminium-Total	µg/L	280	750	180	300	300
Arsenic-Total	µg/L	1	<1	<1	<1	2
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Chromium-Total	µg/L	1	1	1	<1	<1
Copper-Total	µg/L	7	9	6	13	7
Iron-Total	µg/L	600	470	460	400	890
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	64	23	58	36	70
Nickel-Total	µg/L	1	1	<1	1	2
Lead-Total	µg/L	4	1	1	2	4
Zinc-Total	µg/L	49	64	43	68	37

All metals in water - total				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date prepared	-	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024
Aluminium-Total	µg/L	330	220	210
Arsenic-Total	µg/L	<1	<1	<1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1
Chromium-Total	µg/L	<1	<1	1
Copper-Total	µg/L	9	7	5
Iron-Total	µg/L	310	300	470
Mercury-Total	µg/L	<0.05	<0.05	<0.05
Manganese-Total	µg/L	32	29	60
Nickel-Total	µg/L	<1	<1	<1
Lead-Total	µg/L	2	2	1
Zinc-Total	µg/L	56	49	30

Metals in Waters - Acid extractable						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Phosphorus - Total	mg/L	0.1	0.1	0.1	0.1	0.1

Metals in Waters - Acid extractable				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date prepared	-	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024
Phosphorus - Total	mg/L	0.1	0.1	0.09

PFAS in Water TRACE Short						
Our Reference		362947-1	362947-2	362947-3	362947-4	362947-5
Your Reference	UNITS	SW03	SW04	SW06	SW07	SW08
Date Sampled		30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0092	0.013	0.0070	0.0085	0.0079
Perfluorooctanesulfonic acid PFOS	µg/L	0.012	0.013	0.010	0.0081	0.011
Perfluorooctanoic acid PFOA	µg/L	0.016	0.018	0.0065	0.0056	0.0065
6:2 FTS	µg/L	0.001	0.0007	0.001	<0.0004	0.0009
8:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	87	80	88	79	81
Surrogate $^{13}C_2$ *PFOA*	%	96	98	91	98	94
Extracted ISTD $^{18}O_2$ *PFHxS*	%	58	47	65	56	72
Extracted ISTD $^{13}C_4$ *PFOS*	%	88	79	87	83	89
Extracted ISTD $^{13}C_4$ *PFOA*	%	88	78	90	81	87
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	102	90	95	93	99
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	104	94	95	98	100
Total Positive PFHxS & PFOS	µg/L	0.021	0.026	0.017	0.017	0.019
Total Positive PFOS & PFOA	µg/L	0.028	0.031	0.017	0.014	0.017
Total Positive PFAS	µg/L	0.039	0.045	0.025	0.022	0.026

PFAS in Water TRACE Short				
Our Reference		362947-6	362947-7	362947-8
Your Reference	UNITS	SW09	SW10	SW11
Date Sampled		30/09/2024	30/09/2024	30/09/2024
Type of sample		Water	Water	Water
Date prepared	-	03/10/2024	03/10/2024	03/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0035	0.0038	0.0070
Perfluorooctanesulfonic acid PFOS	µg/L	0.0064	0.0050	0.0082
Perfluorooctanoic acid PFOA	µg/L	0.0062	0.0048	0.0060
6:2 FTS	µg/L	<0.0004	<0.0004	0.001
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	90	88	84
Surrogate $^{13}C_2$ *PFOA*	%	100	95	95
Extracted ISTD $^{18}O_2$ *PFHxS*	%	53	57	60
Extracted ISTD $^{13}C_4$ *PFOS*	%	80	81	89
Extracted ISTD $^{13}C_4$ *PFOA*	%	78	82	89
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	93	92	98
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	99	95	98
Total Positive PFHxS & PFOS	µg/L	0.0099	0.0088	0.015
Total Positive PFOS & PFOA	µg/L	0.013	0.0098	0.014
Total Positive PFAS	µg/L	0.016	0.014	0.022

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/10/2024	[NT]	[NT]	[NT]	[NT]	04/10/2024	[NT]
Date analysed	-			08/10/2024	[NT]	[NT]	[NT]	[NT]	08/10/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	109	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate Toluene-d8	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	87	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	362947-2
Date extracted	-			01/10/2024	1	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Date analysed	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	114	107
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	111	103
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	96
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	114	107
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	111	103
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	96
Surrogate o-Terphenyl	%		Org-020	81	1	81	76	6	109	108

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	362947-2
Date extracted	-			01/10/2024	1	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Date analysed	-			03/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	76
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	67
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	75
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	73
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	74
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	76
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99	89
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	71
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	86	1	90	93	3	92	94

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	362947-2
Date prepared	-			30/09/2024	1	30/09/2024	30/09/2024		30/09/2024	30/09/2024
Date analysed	-			30/09/2024	1	30/09/2024	30/09/2024		30/09/2024	30/09/2024
pH	pH Units		Inorg-001	[NT]	1	6.9	7.0	1	100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	5500	5500	0	99	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	9.4	9.3	1	98	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	<20	[NT]		90	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	3.6	3.6	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.9	0.9	0	94	99
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.4	0.4	0	120	98
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.41	0.41	0	120	98
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.006	0.005	18	97	80
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.13	0.13	0	97	87
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.080	0.079	1	100	85
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.5	0.5	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.4	0.3	29	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	<0.001	<0.001	0	97	94
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	<0.001	1	<0.001	<0.001	0	[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	362947-3
Date prepared	-			01/10/2024	2	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Date analysed	-			01/10/2024	2	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Aluminium-Dissolved	µg/L	10	Metals-022	<10	2	300	330	10	105	84
Arsenic-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	96	88
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	94	88
Chromium-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	102	107
Cobalt-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	101	101
Copper-Dissolved	µg/L	1	Metals-022	<1	2	6	5	18	101	95
Iron-Dissolved	µg/L	10	Metals-022	<10	2	230	230	0	100	108
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	2	<0.05	<0.05	0	108	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	2	16	15	6	99	106
Nickel-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	101	97
Lead-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	93	80
Zinc-Dissolved	µg/L	1	Metals-022	<1	2	39	40	3	100	97

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	362947-3
Date prepared	-			01/10/2024	1	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Date analysed	-			01/10/2024	1	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Aluminium-Total	µg/L	10	Metals-022	<10	1	280	290	4	102	#
Arsenic-Total	µg/L	1	Metals-022	<1	1	1	1	0	99	100
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	98
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	97	108
Chromium-Total	µg/L	1	Metals-022	<1	1	1	1	0	97	113
Copper-Total	µg/L	1	Metals-022	<1	1	7	9	25	98	101
Iron-Total	µg/L	10	Metals-022	<10	1	600	610	2	98	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		110	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	64	63	2	94	115
Nickel-Total	µg/L	1	Metals-022	<1	1	1	1	0	96	104
Lead-Total	µg/L	1	Metals-022	<1	1	4	4	0	99	88
Zinc-Total	µg/L	1	Metals-022	<1	1	49	49	0	97	104

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	362947-4
Date prepared	-			[NT]	2	01/10/2024	[NT]		[NT]	01/10/2024
Date analysed	-			[NT]	2	01/10/2024	[NT]		[NT]	01/10/2024
Aluminium-Total	µg/L	10	Metals-022	[NT]	2	750	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	2	<0.1	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	2	<1	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	2	1	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	2	9	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	2	470	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	2	<0.05	[NT]		[NT]	83
Manganese-Total	µg/L	5	Metals-022	[NT]	2	23	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	2	1	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	2	1	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	2	64	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	01/10/2024	01/10/2024		[NT]	[NT]
Date analysed	-			[NT]	3	01/10/2024	01/10/2024		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	3	180	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	3	<0.1	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	3	1	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	3	6	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	3	460	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	3	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	3	58	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	3	1	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	3	43	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	362947-2
Date prepared	-			01/10/2024	1	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Date analysed	-			01/10/2024	1	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.1	0.1	0	95	105

QUALITY CONTROL: PFAS in Water TRACE Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/10/2024	[NT]	[NT]	[NT]	[NT]	03/10/2024	[NT]
Date analysed	-			03/10/2024	[NT]	[NT]	[NT]	[NT]	03/10/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	93	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	99	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	83	[NT]	[NT]	[NT]	[NT]	91	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	80	[NT]	[NT]	[NT]	[NT]	80	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	86	[NT]	[NT]	[NT]	[NT]	93	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	84	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	81	[NT]	[NT]	[NT]	[NT]	109	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

All metals in water - total - # Percent recovery is not applicable due to the high concentration of the elements in the samples. However an acceptable recovery was obtained for the LCS.

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

MISC_INORG:TSS:PQL has been raised due to the small volume of sample supplied.

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CERTIFICATE OF ANALYSIS 365289

Client Details

Client	Gamuda Engineering
Attention	Daniel Shutt
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**WTP - Surface Water Monitoring**
Number of Samples	9 Water
Date samples received	31/10/2024
Date completed instructions received	31/10/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	08/11/2024
Date of Issue	08/11/2024

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Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Nick Sarlamis, Assistant Operation Manager
Sean McAlary, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	05/11/2024	05/11/2024	05/11/2024	05/11/2024	05/11/2024
Date analysed	-	07/11/2024	07/11/2024	07/11/2024	07/11/2024	07/11/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	118	117	118	117	117
Surrogate Toluene-d8	%	100	100	100	100	101
Surrogate 4-Bromofluorobenzene	%	87	87	87	87	87

vTRH(C6-C10)/BTEXN in Water					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	05/11/2024	05/11/2024	05/11/2024	05/11/2024
Date analysed	-	07/11/2024	07/11/2024	07/11/2024	07/11/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	117	117	116	117
Surrogate Toluene-d8	%	100	100	100	99
Surrogate 4-Bromofluorobenzene	%	88	89	87	87

svTRH (C10-C40) in Water						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	80	97	98	96	104

svTRH (C10-C40) in Water					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	02/11/2024	02/11/2024	02/11/2024	02/11/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	290	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	250	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	540	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	460	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	130	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	600	<50
Surrogate o-Terphenyl	%	100	94	80	73

PAHs in Water						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	114	114	92	97	85

PAHs in Water					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	94	102	77	76

Miscellaneous Inorganics						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
pH	pH Units	7.2	7.4	7.6	7.7	7.7
Electrical Conductivity	µS/cm	18,000	31,000	34,000	30,000	1,400
Turbidity	NTU	2.4	2.0	3.8	6.7	3.1
Total Suspended Solids	mg/L	<10	<10	<10	18	<10
Salinity as NaCl*	g/L	12	20	22	19	0.9
Total Nitrogen in water	mg/L	0.9	0.6	0.4	0.4	2.3
NOx as N in water	mg/L	0.02	0.07	0.06	0.02	0.58
Nitrate as N in water	mg/L	0.02	0.056	0.057	0.02	0.54
Nitrite as N in water	mg/L	<0.005	0.011	<0.005	<0.005	0.031
Ammonia as N in water	mg/L	0.41	0.10	0.033	0.031	1.7
Phosphate as P in water	mg/L	0.22	0.062	0.078	0.062	0.05
TKN in water	mg/L	0.9	[NT]	0.4	0.4	1.8
Organic Nitrogen as N	mg/L	0.4	[NT]	0.3	0.4	<0.2
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001

Miscellaneous Inorganics					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
pH	pH Units	7.5	8.0	7.4	7.5
Electrical Conductivity	µS/cm	26,000	6,400	430	34,000
Turbidity	NTU	3.1	5.1	3.9	0.7
Total Suspended Solids	mg/L	12	<10	<10	<10
Salinity as NaCl*	g/L	17	4.1	0.3	22
Total Nitrogen in water	mg/L	0.6	0.8	1.7	0.4
NOx as N in water	mg/L	0.09	<0.005	<0.005	0.08
Nitrate as N in water	mg/L	0.088	<0.005	<0.005	0.076
Nitrite as N in water	mg/L	0.006	<0.005	<0.005	<0.005
Ammonia as N in water	mg/L	0.19	<0.005	0.53	0.048
Phosphate as P in water	mg/L	0.11	0.065	0.27	0.064
TKN in water	mg/L	0.5	0.8	1.7	0.3
Organic Nitrogen as N	mg/L	0.3	0.8	1.2	0.3
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	0.002	<0.001	<0.001	<0.001

All metals in water-dissolved						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Aluminium-Dissolved	µg/L	<10	<10	<10	10	<10
Arsenic-Dissolved	µg/L	1	1	1	1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	1	1	1	5
Iron-Dissolved	µg/L	340	40	20	30	220
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	91	51	48	40	140
Nickel-Dissolved	µg/L	1	1	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	11	16	15	8	10

All metals in water-dissolved					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Aluminium-Dissolved	µg/L	<10	<10	20	<10
Arsenic-Dissolved	µg/L	1	1	<1	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	2	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	1	1	1
Iron-Dissolved	µg/L	70	70	660	10
Mercury-Dissolved	µg/L	<0.05	<0.05	0.06	<0.05
Manganese-Dissolved	µg/L	62	94	130	29
Nickel-Dissolved	µg/L	<1	1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Zinc-Dissolved	µg/L	14	4	6	13

All metals in water - total						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Aluminium-Total	µg/L	50	30	100	350	70
Arsenic-Total	µg/L	2	1	1	2	<1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Chromium-Total	µg/L	1	1	3	2	1
Copper-Total	µg/L	4	3	5	20	7
Iron-Total	µg/L	580	180	250	700	540
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	100	66	64	69	170
Nickel-Total	µg/L	1	2	2	2	1
Lead-Total	µg/L	<1	<1	1	3	<1
Zinc-Total	µg/L	30	37	21	25	13

All metals in water - total					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Aluminium-Total	µg/L	120	70	90	20
Arsenic-Total	µg/L	1	2	<1	1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1
Chromium-Total	µg/L	5	<1	1	1
Copper-Total	µg/L	5	4	3	4
Iron-Total	µg/L	470	330	1,000	60
Mercury-Total	µg/L	<0.05	<0.05	0.06	<0.05
Manganese-Total	µg/L	81	120	140	36
Nickel-Total	µg/L	1	1	<1	1
Lead-Total	µg/L	2	<1	1	<1
Zinc-Total	µg/L	23	18	13	13

Metals in Waters - Acid extractable						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Phosphorus - Total	mg/L	0.2	0.2	0.1	0.1	0.06

Metals in Waters - Acid extractable					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Date analysed	-	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Phosphorus - Total	mg/L	0.2	0.2	0.3	0.1

PFAS in Water TRACE Short						
Our Reference		365289-1	365289-2	365289-3	365289-4	365289-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/11/2024	04/11/2024	04/11/2024	04/11/2024	04/11/2024
Date analysed	-	04/11/2024	04/11/2024	04/11/2024	04/11/2024	04/11/2024
Perfluorobutanesulfonic acid	μg/L	0.002	0.002	0.001	0.002	0.0006
Perfluorohexanesulfonic acid - PFHxS	μg/L	0.0059	0.0056	0.0052	0.0046	0.0023
Perfluorooctanesulfonic acid PFOS	μg/L	0.0095	0.0097	0.010	0.010	0.0066
Perfluorooctanoic acid PFOA	μg/L	0.0041	0.0038	0.0040	0.0062	0.0023
6:2 FTS	μg/L	<0.0004	0.0004	0.0006	0.0004	<0.0004
8:2 FTS	μg/L	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	86	86	89	94	106
Surrogate $^{13}C_2$ *PFOA*	%	105	106	105	111	108
Extracted ISTD $^{13}C_3$ *PFBS*	%	98	103	98	101	102
Extracted ISTD $^{18}O_2$ *PFHxS*	%	101	105	99	102	101
Extracted ISTD $^{13}C_4$ *PFOS*	%	86	85	88	79	85
Extracted ISTD $^{13}C_4$ *PFOA*	%	77	83	80	78	77
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	122	124	120	118	130
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	130	118	107	119	153
Total Positive PFHxS & PFOS	μg/L	0.015	0.015	0.016	0.015	0.0089
Total Positive PFOS & PFOA	μg/L	0.014	0.014	0.014	0.017	0.0089
Total Positive PFAS	μg/L	0.022	0.021	0.022	0.023	0.012

PFAS in Water TRACE Short					
Our Reference		365289-6	365289-7	365289-8	365289-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	04/11/2024	04/11/2024	04/11/2024	04/11/2024
Date analysed	-	04/11/2024	04/11/2024	04/11/2024	04/11/2024
Perfluorobutanesulfonic acid	µg/L	0.002	0.003	0.002	0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0053	0.0074	0.0059	0.0045
Perfluorooctanesulfonic acid PFOS	µg/L	0.011	0.015	0.0073	0.0052
Perfluorooctanoic acid PFOA	µg/L	0.0037	0.010	0.011	0.0042
6:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	94	102	70	63
Surrogate $^{13}C_2$ *PFOA*	%	108	114	100	105
Extracted ISTD $^{13}C_3$ *PFBS*	%	102	107	84	83
Extracted ISTD $^{18}O_2$ *PFHxS*	%	97	96	70	89
Extracted ISTD $^{13}C_4$ *PFOS*	%	78	82	110	98
Extracted ISTD $^{13}C_4$ *PFOA*	%	78	70	61	78
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	127	134	98	110
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	125	151	121	110
Total Positive PFHxS & PFOS	µg/L	0.016	0.022	0.013	0.0098
Total Positive PFOS & PFOA	µg/L	0.014	0.025	0.018	0.0094
Total Positive PFAS	µg/L	0.022	0.035	0.026	0.015

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			05/11/2024	[NT]	[NT]	[NT]	[NT]	05/11/2024	[NT]
Date analysed	-			07/11/2024	[NT]	[NT]	[NT]	[NT]	07/11/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	116	[NT]	[NT]	[NT]	[NT]	115	[NT]
Surrogate Toluene-d8	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	87	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	365289-2
Date extracted	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Date analysed	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	85	128
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	90	120
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	86	116
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	85	128
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	90	120
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	86	116
Surrogate o-Terphenyl	%		Org-020	66	1	80	94	16	96	103

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	365289-2
Date extracted	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Date analysed	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	87	113
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	101
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	120
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	106
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	110
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	117
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	71	98
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	104
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	76	1	114	93	20	78	110

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	365289-3
Date prepared	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Date analysed	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
pH	pH Units		Inorg-001	[NT]	1	7.2	7.3	1	100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	18000	18000	0	96	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	2.4	2.6	8	101	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	<10	[NT]		97	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	12	12	0	96	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.9	0.9	0	87	89
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.02	0.02	0	95	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.02	0.02	0	95	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	93	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.41	0.44	7	91	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.22	0.19	15	88	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.9	0.9	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.4	0.4	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	<0.001	[NT]		96	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	<0.001	1	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	01/11/2024	01/11/2024		[NT]	[NT]
Date analysed	-			[NT]	4	01/11/2024	01/11/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	4	7.7	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	4	30000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	4	6.7	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	4	18	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	4	19	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	4	0.4	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	4	0.02	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	4	0.02	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	4	<0.005	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	4	0.031	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	4	0.062	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	4	0.4	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	4	0.4	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	4	<0.001	<0.001	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	4	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	365289-2
Date prepared	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Date analysed	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	<10	[NT]		99	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		93	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		101	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		86	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		88	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		91	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	340	[NT]		87	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	119	91
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	91	[NT]		89	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		91	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		105	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	11	[NT]		93	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	365289-3
Date prepared	-			[NT]	2	01/11/2024	01/11/2024		[NT]	01/11/2024
Date analysed	-			[NT]	2	01/11/2024	01/11/2024		[NT]	01/11/2024
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	2	<10	<10	0	[NT]	103
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	2	1	1	0	[NT]	100
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	2	<0.1	<0.1	0	[NT]	105
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	87
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	83
Copper-Dissolved	µg/L	1	Metals-022	[NT]	2	1	<1	0	[NT]	79
Iron-Dissolved	µg/L	10	Metals-022	[NT]	2	40	40	0	[NT]	88
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	2	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	2	51	52	2	[NT]	91
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	2	1	1	0	[NT]	82
Lead-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	87
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	2	16	15	6	[NT]	90

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	365289-2
Date prepared	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Date analysed	-			01/11/2024	1	01/11/2024	01/11/2024		01/11/2024	01/11/2024
Aluminium-Total	µg/L	10	Metals-022	<10	1	50	[NT]		92	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	1	2	[NT]		93	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		96	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		91	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	1	[NT]		86	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	4	[NT]		98	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	580	[NT]		89	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	109	90
Manganese-Total	µg/L	5	Metals-022	<5	1	100	[NT]		84	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	1	[NT]		95	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		102	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	30	[NT]		96	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			01/11/2024	[NT]	[NT]	[NT]	[NT]	01/11/2024	[NT]
Date analysed	-			01/11/2024	[NT]	[NT]	[NT]	[NT]	01/11/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: PFAS in Water TRACE Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			04/11/2024	[NT]	[NT]	[NT]	[NT]	04/11/2024	[NT]
Date analysed	-			04/11/2024	[NT]	[NT]	[NT]	[NT]	04/11/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	108	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	98	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	96	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	83	[NT]	[NT]	[NT]	[NT]	83	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	78	[NT]	[NT]	[NT]	[NT]	84	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	70	[NT]	[NT]	[NT]	[NT]	77	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	81	[NT]	[NT]	[NT]	[NT]	79	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	72	[NT]	[NT]	[NT]	[NT]	91	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	70	[NT]	[NT]	[NT]	[NT]	89	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Total metals: no unfiltered, preserved sample was received, therefore analysis was conducted from the unpreserved sample bottle. Note: there is a possibility some elements may be underestimated.

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

TSS:PQL has been raised due to the small volume of sample supplied.

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CERTIFICATE OF ANALYSIS 367012

Client Details

Client	Gamuda Engineering
Attention	Kellie Hunt
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**WTP - Surface Water Monitoring**
Number of Samples	9 Water
Date samples received	21/11/2024
Date completed instructions received	21/11/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	29/11/2024
Date of Issue	29/11/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Sean McAlary, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
TRH C_6 - C_9	µg/L	35	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	35	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	35	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	104	101	103	102	106
Surrogate Toluene-d8	%	99	99	99	100	100
Surrogate 4-Bromofluorobenzene	%	99	93	93	90	103

vTRH(C6-C10)/BTEXN in Water					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	108	102	107	101
Surrogate Toluene-d8	%	100	101	100	99
Surrogate 4-Bromofluorobenzene	%	100	93	104	95

svTRH (C10-C40) in Water						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	23/11/2024	23/11/2024	23/11/2024	23/11/2024	23/11/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	110	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	110	<50	<50	<50
Surrogate o-Terphenyl	%	84	86	97	97	95

svTRH (C10-C40) in Water					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	23/11/2024	23/11/2024	23/11/2024	23/11/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50
Surrogate o-Terphenyl	%	84	86	83	92

PAHs in Water						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	25/11/2024	25/11/2024	25/11/2024	25/11/2024	25/11/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	74	74	80	80	79

PAHs in Water					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	25/11/2024	25/11/2024	25/11/2024	25/11/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	72	78	66	80

Miscellaneous Inorganics						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
pH	pH Units	7.2	7.4	7.7	7.5	7.5
Electrical Conductivity	µS/cm	7,100	24,000	27,000	28,000	2,000
Turbidity	NTU	5.6	22	2.0	5.4	3.5
Total Suspended Solids	mg/L	<5	39	<5	8	8
Salinity as NaCl*	g/L	4.6	16	18	18	1.3
Total Nitrogen in water	mg/L	0.8	0.7	0.4	0.6	2.4
NOx as N in water	mg/L	0.07	<0.005	<0.005	0.02	0.1
Nitrate as N in water	mg/L	0.056	<0.005	<0.005	0.02	0.11
Nitrite as N in water	mg/L	0.011	<0.005	<0.005	0.006	0.021
Ammonia as N in water	mg/L	0.15	0.018	0.029	0.12	0.91
Phosphate as P in water	mg/L	0.03	0.02	0.01	0.02	0.01
TKN in water	mg/L	0.7	0.7	0.4	0.6	2.3
Organic Nitrogen as N	mg/L	0.6	0.7	0.3	0.5	1.3
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	0.001	0.001	<0.001	0.001

Miscellaneous Inorganics					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024
pH	pH Units	7.5	7.8	7.2	7.4
Electrical Conductivity	µS/cm	22,000	5,700	280	29,000
Turbidity	NTU	5.4	12	23	2.2
Total Suspended Solids	mg/L	5	27	29	6
Salinity as NaCl*	g/L	14	3.7	0.2	19
Total Nitrogen in water	mg/L	0.5	1.1	1	0.5
NOx as N in water	mg/L	0.02	0.08	0.03	0.08
Nitrate as N in water	mg/L	0.02	0.070	0.03	0.069
Nitrite as N in water	mg/L	<0.005	0.01	0.005	0.01
Ammonia as N in water	mg/L	0.011	0.16	0.22	0.11
Phosphate as P in water	mg/L	0.060	0.03	0.069	0.04
TKN in water	mg/L	0.5	1.0	0.9	0.5
Organic Nitrogen as N	mg/L	0.4	0.9	0.7	0.4
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	0.001	<0.001	<0.001	<0.001

All metals in water-dissolved						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/11/2024	25/11/2024	25/11/2024	25/11/2024	25/11/2024
Date analysed	-	25/11/2024	25/11/2024	25/11/2024	25/11/2024	25/11/2024
Aluminium-Dissolved	µg/L	10	<10	<10	<10	10
Arsenic-Dissolved	µg/L	<1	1	1	2	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	1	2	<1	1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	1	1	4
Iron-Dissolved	µg/L	150	40	30	50	350
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	130	120	81	140	130
Nickel-Dissolved	µg/L	<1	1	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	9	21	13	12	21

All metals in water-dissolved					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	25/11/2024	25/11/2024	25/11/2024	25/11/2024
Date analysed	-	25/11/2024	25/11/2024	25/11/2024	25/11/2024
Aluminium-Dissolved	µg/L	30	10	40	<10
Arsenic-Dissolved	µg/L	1	1	1	2
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	1	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	1	<1
Copper-Dissolved	µg/L	1	3	2	1
Iron-Dissolved	µg/L	40	80	1,000	30
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	140	210	200	110
Nickel-Dissolved	µg/L	<1	1	1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Zinc-Dissolved	µg/L	17	16	9	12

All metals in water - total						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Aluminium-Total	µg/L	<10	<10	10	10	10
Arsenic-Total	µg/L	<1	1	1	1	<1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Chromium-Total	µg/L	<1	1	2	<1	<1
Copper-Total	µg/L	<1	1	2	1	3
Iron-Total	µg/L	150	30	30	60	320
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	96	100	84	130	96
Nickel-Total	µg/L	<1	<1	<1	<1	<1
Lead-Total	µg/L	<1	<1	<1	<1	<1
Zinc-Total	µg/L	9	27	17	13	20

All metals in water - total					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Aluminium-Total	µg/L	<10	10	30	10
Arsenic-Total	µg/L	1	<1	<1	1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1
Chromium-Total	µg/L	<1	<1	<1	<1
Copper-Total	µg/L	1	2	2	2
Iron-Total	µg/L	40	70	930	50
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	110	160	140	130
Nickel-Total	µg/L	<1	1	<1	<1
Lead-Total	µg/L	<1	<1	<1	<1
Zinc-Total	µg/L	18	15	9	24

Metals in Waters - Acid extractable						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Phosphorus - Total	mg/L	0.1	0.2	<0.1	0.1	0.08

Metals in Waters - Acid extractable					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Phosphorus - Total	mg/L	0.1	0.2	0.3	0.1

PFAS in Water TRACE Short						
Our Reference		367012-1	367012-2	367012-3	367012-4	367012-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	26/11/2024	26/11/2024	26/11/2024	26/11/2024	26/11/2024
Date analysed	-	26/11/2024	26/11/2024	26/11/2024	26/11/2024	26/11/2024
Perfluorobutanesulfonic acid	µg/L	0.002	0.002	0.002	0.002	0.002
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0050	0.0063	0.0056	0.0040	0.0041
Perfluorooctanesulfonic acid PFOS	µg/L	0.0062	0.010	0.0088	0.0053	0.0061
Perfluorooctanoic acid PFOA	µg/L	0.0029	0.0044	0.0045	0.0047	0.0047
6:2 FTS	µg/L	<0.0004	0.0005	0.0007	0.0005	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	68	86	110	82	85
Surrogate $^{13}C_2$ *PFOA*	%	98	97	100	100	103
Extracted ISTD $^{13}C_3$ *PFBS*	%	95	94	93	95	97
Extracted ISTD $^{18}O_2$ *PFHxS*	%	112	105	112	106	101
Extracted ISTD $^{13}C_4$ *PFOS*	%	119	110	108	106	101
Extracted ISTD $^{13}C_4$ *PFOA*	%	69	70	71	69	65
Extracted ISTD$^{13}C_2$ *6:2FTS*	%	88	92	89	91	90
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	120	115	117	114	126
Total Positive PFHxS & PFOS	µg/L	0.011	0.016	0.014	0.0093	0.010
Total Positive PFOS & PFOA	µg/L	0.0091	0.014	0.013	0.010	0.011
Total Positive PFAS	µg/L	0.016	0.024	0.021	0.016	0.017

PFAS in Water TRACE Short					
Our Reference		367012-6	367012-7	367012-8	367012-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	26/11/2024	26/11/2024	26/11/2024	26/11/2024
Date analysed	-	26/11/2024	26/11/2024	26/11/2024	26/11/2024
Perfluorobutanesulfonic acid	μg/L	0.002	0.0042	0.002	0.001
Perfluorohexanesulfonic acid - PFHxS	μg/L	0.0068	0.0089	0.0045	0.0037
Perfluorooctanesulfonic acid PFOS	μg/L	0.010	0.015	0.0095	0.0056
Perfluorooctanoic acid PFOA	μg/L	0.0052	0.0085	0.0078	0.0043
6:2 FTS	μg/L	0.0005	<0.0004	<0.0004	0.0004
8:2 FTS	μg/L	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	82	86	102	95
Surrogate $^{13}C_2$ *PFOA*	%	100	101	103	98
Extracted ISTD $^{13}C_3$ *PFBS*	%	96	92	95	90
Extracted ISTD $^{18}O_2$ *PFHxS*	%	103	95	98	111
Extracted ISTD $^{13}C_4$ *PFOS*	%	110	97	98	94
Extracted ISTD $^{13}C_4$ *PFOA*	%	66	60	62	70
Extracted ISTD$^{13}C_2$ *6:2FTS*	%	93	83	86	90
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	133	116	118	106
Total Positive PFHxS & PFOS	μg/L	0.017	0.024	0.014	0.0093
Total Positive PFOS & PFOA	μg/L	0.015	0.024	0.017	0.0099
Total Positive PFAS	μg/L	0.025	0.037	0.024	0.015

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			22/11/2024	[NT]	[NT]	[NT]	[NT]	22/11/2024	[NT]
Date analysed	-			22/11/2024	[NT]	[NT]	[NT]	[NT]	22/11/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/11/2024	1	22/11/2024	22/11/2024		22/11/2024	[NT]
Date analysed	-			22/11/2024	1	23/11/2024	23/11/2024		22/11/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	116	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	120	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	114	[NT]
TRH $>C_{10}$ - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	116	[NT]
TRH $>C_{16}$ - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	120	[NT]
TRH $>C_{34}$ - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	114	[NT]
Surrogate o-Terphenyl	%		Org-020	87	1	84	96	13	140	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	367012-2
Date extracted	-			22/11/2024	1	22/11/2024	22/11/2024		22/11/2024	22/11/2024
Date analysed	-			25/11/2024	1	25/11/2024	25/11/2024		25/11/2024	25/11/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	100
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	95
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	109
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	96
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	89
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	87	94
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	110
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	69
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	85	1	74	85	14	86	82

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	367012-6
Date prepared	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Date analysed	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	21/11/2024
pH	pH Units		Inorg-001	[NT]	1	7.2	[NT]		99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	7100	[NT]		91	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	5.6	5.6	0	100	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	<5	<5	0	98	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	4.6	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.8	[NT]		105	97
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.07	[NT]		93	113
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.056	[NT]		94	113
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.011	[NT]		89	112
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.15	[NT]		98	116
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.03	[NT]		113	88
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.7	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.6	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	<0.001	[NT]		95	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	<0.001	1	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	21/11/2024	21/11/2024		[NT]	[NT]
Date analysed	-			[NT]	3	21/11/2024	21/11/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	3	7.7	7.8	1	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	3	27000	27000	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	3	2.0	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	3	<5	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	3	18	17	6	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	3	0.4	0.3	29	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	<0.005	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	<0.005	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	3	<0.005	<0.005	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	3	0.029	0.025	15	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	3	0.01	0.02	67	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	3	0.4	0.3	29	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	3	0.3	0.3	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	3	0.001	<0.001	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	3	0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	367012-2
Date prepared	-			25/11/2024	1	25/11/2024	25/11/2024		25/11/2024	25/11/2024
Date analysed	-			25/11/2024	1	25/11/2024	25/11/2024		25/11/2024	25/11/2024
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	10	10	0	96	91
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	92	95
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	88	94
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	104	102
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	99
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	90
Iron-Dissolved	µg/L	10	Metals-022	<10	1	150	150	0	95	90
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		115	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	130	120	8	100	94
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	1	0	101	93
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	88	75
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	9	9	0	94	93

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	367012-4
Date prepared	-			[NT]	3	25/11/2024	25/11/2024		[NT]	22/11/2024
Date analysed	-			[NT]	3	25/11/2024	25/11/2024		[NT]	22/11/2024
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	3	<10	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	3	1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	3	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	3	2	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	3	1	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	3	30	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	3	<0.05	<0.05	0	[NT]	106
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	3	81	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	3	13	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	367012-4
Date prepared	-			22/11/2024	3	22/11/2024	22/11/2024		22/11/2024	22/11/2024
Date analysed	-			22/11/2024	3	22/11/2024	22/11/2024		22/11/2024	22/11/2024
Aluminium-Total	µg/L	10	Metals-022	<10	3	10	10	0	81	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	3	1	1	0	82	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	3	<0.1	<0.1	0	82	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	3	<1	<1	0	84	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	3	2	2	0	83	[NT]
Copper-Total	µg/L	1	Metals-022	<1	3	2	2	0	86	[NT]
Iron-Total	µg/L	10	Metals-022	<10	3	30	30	0	97	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	3	<0.05	<0.05	0	109	106
Manganese-Total	µg/L	5	Metals-022	<5	3	84	84	0	83	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	3	<1	<1	0	87	[NT]
Lead-Total	µg/L	1	Metals-022	<1	3	<1	<1	0	85	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	3	17	16	6	90	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/11/2024	3	22/11/2024	22/11/2024		22/11/2024	[NT]
Date analysed	-			22/11/2024	3	22/11/2024	22/11/2024		22/11/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	3	<0.1	<0.1	0	112	[NT]

QUALITY CONTROL: PFAS in Water TRACE Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			26/11/2024	[NT]	[NT]	[NT]	[NT]	26/11/2024	[NT]
Date analysed	-			26/11/2024	[NT]	[NT]	[NT]	[NT]	26/11/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	86	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	91	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	100	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	82	[NT]	[NT]	[NT]	[NT]	79	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	75	[NT]	[NT]	[NT]	[NT]	73	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	79	[NT]	[NT]	[NT]	[NT]	87	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	90	[NT]	[NT]	[NT]	[NT]	93	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	86	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	106	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

8 Metals in Waters - total - The PQL has been raised 2 times for #3 due to suppression of the internal standard, which required the samples to be diluted. This is likely due to the high level of salts in the sample.

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CERTIFICATE OF ANALYSIS 369151

Client Details

Client	Gamuda Engineering
Attention	Lochlan Browne
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**WTP - Surface Water Monitoring**
Number of Samples	9 Water
Date samples received	16/12/2024
Date completed instructions received	16/12/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	02/01/2025
Date of Issue	30/12/2024

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Results Approved By
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Sean McAlary, Senior Chemist
Tabitha Roberts, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
Date analysed	-	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	106	108	107	105	104
Surrogate Toluene-d8	%	99	100	100	100	99
Surrogate 4-Bromofluorobenzene	%	88	95	94	89	85

vTRH(C6-C10)/BTEXN in Water					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	19/12/2024	19/12/2024	19/12/2024	19/12/2024
Date analysed	-	19/12/2024	19/12/2024	19/12/2024	19/12/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	107	105	103	102
Surrogate Toluene-d8	%	101	100	99	97
Surrogate 4-Bromofluorobenzene	%	95	90	87	85

svTRH (C10-C40) in Water						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
TRH C_{10} - C_{14}	µg/L	73	77	54	51	67
TRH C_{15} - C_{28}	µg/L	360	110	<100	100	160
TRH C_{29} - C_{36}	µg/L	350	120	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	780	310	50	160	220
TRH >C_{10} - C_{16}	µg/L	79	<50	<50	<50	59
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	79	<50	<50	<50	59
TRH >C_{16} - C_{34}	µg/L	610	190	100	160	210
TRH >C_{34} - C_{40}	µg/L	160	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	850	190	100	160	270
Surrogate o-Terphenyl	%	97	90	97	113	136

svTRH (C10-C40) in Water					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
TRH C_{10} - C_{14}	µg/L	60	62	56	67
TRH C_{15} - C_{28}	µg/L	120	100	150	120
TRH C_{29} - C_{36}	µg/L	<100	<100	100	120
Total +ve TRH (C10-C36)	µg/L	180	170	320	310
TRH >C_{10} - C_{16}	µg/L	52	52	50	55
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	52	52	50	55
TRH >C_{16} - C_{34}	µg/L	190	160	220	200
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	240	210	270	250
Surrogate o-Terphenyl	%	108	92	108	105

PAHs in Water						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	80	81	87	86	85

PAHs in Water					
Our Reference	UNITS	369151-6	369151-7	369151-8	369151-9
Your Reference		SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date extracted	-	17/12/2024	17/12/2024	17/12/2024	17/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	91	81	82	82

Miscellaneous Inorganics						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
pH	pH Units	7.2	7.5	7.6	7.7	7.5
Electrical Conductivity	µS/cm	19,000	34,000	39,000	27,000	4,500
Turbidity	NTU	9.1	2.9	3.2	4.2	4.0
Total Suspended Solids	mg/L	43	16	12	8	<5
Salinity as NaCl*	g/L	12	22	25	18	2.9
Total Nitrogen in water	mg/L	1.9	1	0.5	1.3	8.2
NOx as N in water	mg/L	<0.005	0.06	<0.005	0.007	0.5
Nitrate as N in water	mg/L	<0.005	0.050	<0.005	<0.005	0.40
Nitrite as N in water	mg/L	<0.005	0.008	<0.005	<0.005	0.053
Ammonia as N in water	mg/L	0.36	0.030	0.039	0.016	6.9
Phosphate as P in water	mg/L	0.04	0.088	0.062	0.03	0.02
TKN in water	mg/L	1.9	0.9	0.5	1.3	7.7
Organic Nitrogen as N	mg/L	1.6	0.9	0.4	1.2	0.8
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001

Miscellaneous Inorganics					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Date analysed	-	16/12/2024	16/12/2024	16/12/2024	16/12/2024
pH	pH Units	7.3	7.3	7.2	7.5
Electrical Conductivity	µS/cm	32,000	37,000	360	29,000
Turbidity	NTU	4.2	5.0	3.2	2.4
Total Suspended Solids	mg/L	13	<5	14	<5
Salinity as NaCl*	g/L	21	24	0.2	19
Total Nitrogen in water	mg/L	0.6	0.9	1.1	0.7
NOx as N in water	mg/L	0.04	0.04	0.06	0.08
Nitrate as N in water	mg/L	0.03	0.03	0.05	0.070
Nitrite as N in water	mg/L	0.006	<0.005	0.016	0.01
Ammonia as N in water	mg/L	0.083	0.13	0.42	0.090
Phosphate as P in water	mg/L	0.082	0.082	0.073	0.081
TKN in water	mg/L	0.6	0.9	1.1	0.6
Organic Nitrogen as N	mg/L	0.5	0.7	0.6	0.5
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001	<0.001

All metals in water-dissolved						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Aluminium-Dissolved	µg/L	<10	<10	<10	<10	<10
Arsenic-Dissolved	µg/L	1	2	2	2	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	2
Copper-Dissolved	µg/L	<1	1	2	2	<1
Iron-Dissolved	µg/L	180	20	20	20	190
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	140	87	51	80	580
Nickel-Dissolved	µg/L	2	1	<1	1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	38	21	10	16	15

All metals in water-dissolved					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Aluminium-Dissolved	µg/L	<10	<10	<10	<10
Arsenic-Dissolved	µg/L	2	2	<1	2
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	1	1	1	2
Iron-Dissolved	µg/L	30	40	990	20
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	120	110	110	63
Nickel-Dissolved	µg/L	1	1	1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Zinc-Dissolved	µg/L	22	25	25	15

All metals in water - total						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Aluminium-Total	µg/L	90	60	80	50	50
Arsenic-Total	µg/L	2	2	2	2	1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1	2
Chromium-Total	µg/L	1	2	2	1	1
Copper-Total	µg/L	5	2	4	3	3
Iron-Total	µg/L	430	280	220	290	730
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	160	88	55	100	620
Nickel-Total	µg/L	2	1	1	1	2
Lead-Total	µg/L	2	2	1	<1	<1
Zinc-Total	µg/L	66	29	22	17	35

All metals in water - total					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Aluminium-Total	µg/L	60	40	40	30
Arsenic-Total	µg/L	2	2	1	2
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1
Chromium-Total	µg/L	1	1	<1	<1
Copper-Total	µg/L	3	2	3	3
Iron-Total	µg/L	390	270	1,600	170
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	120	100	170	74
Nickel-Total	µg/L	1	2	2	<1
Lead-Total	µg/L	2	<1	<1	<1
Zinc-Total	µg/L	41	47	54	14

Metals in Waters - Acid extractable						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Phosphorus - Total	mg/L	0.3	0.2	0.1	0.2	0.1

Metals in Waters - Acid extractable					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Date analysed	-	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Phosphorus - Total	mg/L	0.2	0.2	0.2	0.2

PFAS in Water TRACE Short						
Our Reference		369151-1	369151-2	369151-3	369151-4	369151-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/12/2024	20/12/2024	20/12/2024	20/12/2024	20/12/2024
Date analysed	-	23/12/2024	23/12/2024	23/12/2024	23/12/2024	23/12/2024
Perfluorobutanesulfonic acid	µg/L	0.003	0.002	0.001	0.002	0.003
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0052	0.0052	0.0028	0.0034	0.0046
Perfluorooctanesulfonic acid PFOS	µg/L	0.0096	0.012	0.0079	0.0090	0.011
Perfluorooctanoic acid PFOA	µg/L	0.0029	0.0035	0.016	0.0043	0.0054
6:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	101	93	110	94	90
Surrogate $^{13}C_2$ *PFOA*	%	82	84	87	92	91
Extracted ISTD $^{13}C_3$ *PFBS*	%	70	70	76	69	67
Extracted ISTD $^{18}O_2$ *PFHxS*	%	80	85	88	92	85
Extracted ISTD $^{13}C_4$ *PFOS*	%	98	93	91	102	101
Extracted ISTD $^{13}C_4$ *PFOA*	%	73	76	74	68	60
Extracted ISTD$^{13}C_2$ *6:2FTS*	%	63	67	73	62	63
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	97	110	101	102	108
Total Positive PFHxS & PFOS	µg/L	0.015	0.017	0.011	0.012	0.015
Total Positive PFOS & PFOA	µg/L	0.012	0.015	0.024	0.013	0.016
Total Positive PFAS	µg/L	0.020	0.022	0.028	0.018	0.023

PFAS in Water TRACE Short					
Our Reference		369151-6	369151-7	369151-8	369151-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Date Sampled		16/12/2024	16/12/2024	16/12/2024	16/12/2024
Type of sample		Water	Water	Water	Water
Date prepared	-	20/12/2024	20/12/2024	20/12/2024	20/12/2024
Date analysed	-	23/12/2024	23/12/2024	23/12/2024	23/12/2024
Perfluorobutanesulfonic acid	µg/L	0.002	0.002	0.003	0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0057	0.0042	0.0049	0.0030
Perfluorooctanesulfonic acid PFOS	µg/L	0.014	0.0090	0.011	0.0090
Perfluorooctanoic acid PFOA	µg/L	0.0043	0.0034	0.0085	0.0048
6:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	96	92	79	84
Surrogate $^{13}C_2$ *PFOA*	%	92	86	101	100
Extracted ISTD $^{13}C_3$ *PFBS*	%	68	74	73	72
Extracted ISTD $^{18}O_2$ *PFHxS*	%	95	90	96	103
Extracted ISTD $^{13}C_4$ *PFOS*	%	104	103	144	119
Extracted ISTD $^{13}C_4$ *PFOA*	%	69	70	56	63
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	68	71	68	70
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	110	107	118	128
Total Positive PFHxS & PFOS	µg/L	0.020	0.013	0.016	0.012
Total Positive PFOS & PFOA	µg/L	0.019	0.012	0.020	0.014
Total Positive PFAS	µg/L	0.027	0.019	0.028	0.018

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			19/12/2024	1	19/12/2024	20/12/2024		19/12/2024	[NT]
Date analysed	-			19/12/2024	1	19/12/2024	20/12/2024		19/12/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	99	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	99	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	97	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	95	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	1	106	102	4	106	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	97	2	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	90	1	88	83	6	96	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	369151-2
Date extracted	-			17/12/2024	1	17/12/2024	17/12/2024		17/12/2024	17/12/2024
Date analysed	-			17/12/2024	1	18/12/2024	18/12/2024		17/12/2024	18/12/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	73	110	40	105	122
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	360	230	44	104	118
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	350	200	55	100	108
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	79	93	16	105	122
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	610	370	49	104	118
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	160	<100	46	100	108
Surrogate o-Terphenyl	%		Org-020	84	1	97	94	3	89	84

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	369151-2
Date extracted	-			17/12/2024	1	17/12/2024	17/12/2024		17/12/2024	17/12/2024
Date analysed	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	18/12/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	97
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	82
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	91
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	104
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	93
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	95
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	104
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	86
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	96	1	80	84	5	87	88

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	369151-8
Date prepared	-			16/12/2024	5	16/12/2024	16/12/2024		16/12/2024	16/12/2024
Date analysed	-			16/12/2024	5	16/12/2024	16/12/2024		16/12/2024	16/12/2024
pH	pH Units		Inorg-001	[NT]	5	7.5	[NT]		100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	5	4500	[NT]		105	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	5	4.0	[NT]		101	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	5	<5	[NT]		91	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	5	2.9	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	5	8.2	8.1	1	102	97
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	5	0.5	[NT]		105	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	5	0.40	[NT]		105	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	5	0.053	[NT]		91	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	5	6.9	[NT]		109	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	5	0.02	[NT]		106	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	5	7.7	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	5	0.8	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	5	<0.001	<0.001	0	102	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	<0.001	5	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	7	16/12/2024	16/12/2024		[NT]	[NT]
Date analysed	-			[NT]	7	16/12/2024	16/12/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	7	7.3	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	7	37000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	7	5.0	4.6	8	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	7	<5	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	7	24	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	7	0.9	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	7	0.04	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	7	0.03	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	7	<0.005	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	7	0.13	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	7	0.082	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	7	0.9	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	7	0.7	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	7	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	7	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	8	16/12/2024	16/12/2024		[NT]	[NT]
Date analysed	-			[NT]	8	16/12/2024	16/12/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	8	7.2	7.3	1	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	8	360	350	3	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	8	3.2	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	8	14	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	8	0.2	0.2	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	8	1.1	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	8	0.06	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	8	0.05	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	8	0.016	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	8	0.42	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	8	0.073	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	8	1.1	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	8	0.6	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	8	<0.001	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	8	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	9	16/12/2024	16/12/2024		[NT]	[NT]
Date analysed	-			[NT]	9	16/12/2024	16/12/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	9	7.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	9	29000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	9	2.4	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	9	<5	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	9	19	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	9	0.7	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	9	0.08	0.08	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	9	0.070	0.082	16	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	9	0.01	0.01	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	9	0.090	0.11	20	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	9	0.081	0.082	1	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	9	0.6	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	9	0.5	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	9	<0.001	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	9	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W7	369151-2
Date prepared	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	18/12/2024
Date analysed	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	18/12/2024
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	86	79
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	92	94
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	93	90
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	104	124
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	114
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	100	102
Iron-Dissolved	µg/L	10	Metals-022	<10	1	180	190	5	82	92
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		99	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	140	140	0	99	117
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	101	106
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	80
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	38	39	3	101	105

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	369151-5
Date prepared	-			[NT]	4	18/12/2024	18/12/2024		[NT]	18/12/2024
Date analysed	-			[NT]	4	18/12/2024	18/12/2024		[NT]	18/12/2024
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	4	<10	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	4	2	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	4	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	4	2	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	4	20	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	96
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	4	80	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	4	1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	4	16	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	369151-5
Date prepared	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	18/12/2024
Date analysed	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	18/12/2024
Aluminium-Total	µg/L	10	Metals-022	<10	1	90	110	20	86	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	1	2	2	0	96	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	89	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	98	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	1	1	0	98	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	5	8	46	97	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	430	490	13	84	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		119	90
Manganese-Total	µg/L	5	Metals-022	<5	1	160	160	0	94	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	2	2	0	95	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	2	3	40	95	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	66	67	2	95	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	18/12/2024	18/12/2024		[NT]	[NT]
Date analysed	-			[NT]	4	18/12/2024	18/12/2024		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	4	50	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	4	2	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	4	<0.1	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	4	1	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	4	3	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	4	290	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	4	100	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	4	1	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	4	17	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	[NT]
Date analysed	-			18/12/2024	1	18/12/2024	18/12/2024		18/12/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.3	0.3	0	102	[NT]

QUALITY CONTROL: PFAS in Water TRACE Short					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/12/2024	[NT]	[NT]	[NT]	[NT]	20/12/2024	[NT]
Date analysed	-			23/12/2024	[NT]	[NT]	[NT]	[NT]	23/12/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	92	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	113	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	92	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{13}C_3$ PFBS	%		Org-029	71	[NT]	[NT]	[NT]	[NT]	70	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	70	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	69	[NT]	[NT]	[NT]	[NT]	70	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	70	[NT]	[NT]	[NT]	[NT]	76	[NT]
Extracted ISTD$^{13}C_2$ 6:2FTS	%		Org-029	66	[NT]	[NT]	[NT]	[NT]	79	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	93	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Total metals: no unfiltered, preserved sample was received, therefore analysis was conducted from the unpreserved sample bottle. Note: there is a possibility some elements may be underestimated.

TRH_BTEX_W_V_NEPM:Samples 2,3,6,9 have headspace.

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CERTIFICATE OF ANALYSIS 370423

Client Details

Client	Gamuda Engineering
Attention	Tahli moore
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**WTP - Surface Water Monitoring**
Number of Samples	9 Water
Date samples received	14/01/2025
Date completed instructions received	14/01/2025

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

Report Details

Date results requested by	21/01/2025
Date of Issue	21/01/2025

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Giovanni Agosti, Group Technical Manager
Sean McAlary, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025	16/01/2025
TRH C_6 - C_9	µg/L	18	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	20	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	20	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	96	96	97	95	95
Surrogate Toluene-d8	%	90	90	90	90	90
Surrogate 4-Bromofluorobenzene	%	91	91	92	92	91

vTRH(C6-C10)/BTEXN in Water					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025
TRH C_6 - C_9	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	97	94	94
Surrogate Toluene-d8	%	90	90	90	90
Surrogate 4-Bromofluorobenzene	%	91	91	90	90

svTRH (C10-C40) in Water						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	16/01/2025	16/01/2025	16/01/2025	16/01/2025
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	120
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	120
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	120
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50	120
Surrogate o-Terphenyl	%	90	99	91	85	96

svTRH (C10-C40) in Water					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	180	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	180	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	210	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	310	<50	<50	<50
Surrogate o-Terphenyl	%	83	86	84	81

PAHs in Water						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	92	113	99	100	96

PAHs in Water					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date extracted	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	95	99	98	85

Miscellaneous Inorganics						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
pH	pH Units	7.5	7.5	7.6	7.5	7.6
Electrical Conductivity	µS/cm	5,500	20,000	26,000	15,000	1,900
Turbidity	NTU	5.0	4.2	4.3	4.4	2.3
Total Suspended Solids	mg/L	10	12	16	10	<5
Salinity as NaCl*	g/L	3.6	13	17	9.6	1.2
Total Nitrogen in water	mg/L	1	0.7	0.6	0.7	1.5
NOx as N in water	mg/L	0.1	0.3	0.2	0.4	0.56
Nitrate as N in water	mg/L	0.05	0.29	0.16	0.40	0.43
Nitrite as N in water	mg/L	0.080	0.028	0.013	0.016	0.12
Ammonia as N in water	mg/L	0.38	0.044	0.026	0.18	0.81
Phosphate as P in water	mg/L	0.080	0.053	0.04	0.052	0.04
TKN in water	mg/L	0.8	0.4	0.4	0.3	0.9
Organic Nitrogen as N	mg/L	0.5	0.3	0.4	<0.2	<0.2
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001	<0.001	0.001

Miscellaneous Inorganics					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
pH	pH Units	7.5	7.6	7.1	7.5
Electrical Conductivity	µS/cm	17,000	9,800	350	14,000
Turbidity	NTU	4.2	4.0	3.1	3.8
Total Suspended Solids	mg/L	10	7	16	10
Salinity as NaCl*	g/L	11	6.4	0.2	8.9
Total Nitrogen in water	mg/L	1.1	0.9	0.8	0.7
NOx as N in water	mg/L	0.3	0.3	<0.005	0.5
Nitrate as N in water	mg/L	0.29	0.25	<0.005	0.45
Nitrite as N in water	mg/L	0.037	0.091	<0.005	0.017
Ammonia as N in water	mg/L	0.023	0.26	0.11	0.16
Phosphate as P in water	mg/L	0.05	0.088	0.14	0.054
TKN in water	mg/L	0.7	0.3	0.7	0.1
Organic Nitrogen as N	mg/L	0.7	0.3	0.7	<0.2
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.001	<0.001	<0.001	<0.001

All metals in water-dissolved						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Aluminium-Dissolved	µg/L	<10	<10	<10	20	40
Arsenic-Dissolved	µg/L	1	2	1	1	2
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	1	2	1	2	4
Iron-Dissolved	µg/L	240	50	40	110	360
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	160	64	53	62	110
Nickel-Dissolved	µg/L	1	1	<1	<1	3
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	9	27	13	9	21

All metals in water-dissolved					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Aluminium-Dissolved	µg/L	<10	<10	30	20
Arsenic-Dissolved	µg/L	2	2	3	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Cobalt-Dissolved	µg/L	<1	1	2	<1
Copper-Dissolved	µg/L	2	1	2	2
Iron-Dissolved	µg/L	60	160	600	110
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	85	300	230	53
Nickel-Dissolved	µg/L	1	1	2	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Zinc-Dissolved	µg/L	27	14	16	10

All metals in water - total						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Aluminium-Total	µg/L	60	140	140	260	160
Arsenic-Total	µg/L	1	2	2	2	2
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Chromium-Total	µg/L	<1	1	2	<1	2
Copper-Total	µg/L	2	4	2	2	33
Iron-Total	µg/L	530	280	300	390	720
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	170	68	58	68	110
Nickel-Total	µg/L	1	1	1	1	2
Lead-Total	µg/L	<1	2	1	<1	1
Zinc-Total	µg/L	17	32	17	13	24

All metals in water - total					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Aluminium-Total	µg/L	120	40	70	230
Arsenic-Total	µg/L	2	2	3	1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	1	2	<1
Chromium-Total	µg/L	<1	1	<1	<1
Copper-Total	µg/L	2	2	3	2
Iron-Total	µg/L	260	540	1,300	330
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	84	300	230	57
Nickel-Total	µg/L	1	2	2	<1
Lead-Total	µg/L	1	<1	1	<1
Zinc-Total	µg/L	33	32	25	13

Metals in Waters - Acid extractable						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Phosphorus - Total	mg/L	0.2	0.2	0.1	0.1	0.2

Metals in Waters - Acid extractable					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Date analysed	-	15/01/2025	15/01/2025	15/01/2025	15/01/2025
Phosphorus - Total	mg/L	0.3	0.2	0.4	0.1

PFAS in Water TRACE Short						
Our Reference		370423-1	370423-2	370423-3	370423-4	370423-5
Your Reference	UNITS	SW01	SW02	SW03	SW06	SW07
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Perfluorobutanesulfonic acid	µg/L	0.014	0.0053	0.003	0.003	0.004
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0098	0.0072	0.0052	0.0041	0.0067
Perfluorooctanesulfonic acid PFOS	µg/L	0.028	0.019	0.020	0.014	0.025
Perfluorooctanoic acid PFOA	µg/L	0.0087	0.0069	0.0060	0.0085	0.011
6:2 FTS	µg/L	<0.0004	0.001	0.0009	0.001	0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	113	110	121	120	124
Surrogate $^{13}C_2$ *PFOA*	%	89	98	99	100	103
Extracted ISTD $^{13}C_3$ *PFBS*	%	74	75	71	74	75
Extracted ISTD $^{18}O_2$ *PFHxS*	%	98	99	101	104	108
Extracted ISTD $^{13}C_4$ *PFOS*	%	88	91	87	88	90
Extracted ISTD $^{13}C_4$ *PFOA*	%	60	60	56	58	55
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	77	80	77	83	81
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	136	136	132	147	145
Total Positive PFHxS & PFOS	µg/L	0.038	0.026	0.025	0.018	0.031
Total Positive PFOS & PFOA	µg/L	0.037	0.026	0.026	0.023	0.036
Total Positive PFAS	µg/L	0.060	0.039	0.035	0.031	0.046

PFAS in Water TRACE Short					
Our Reference		370423-6	370423-7	370423-8	370423-9
Your Reference	UNITS	SW08	SW09	SW10	SW11
Type of sample		Water	Water	Water	Water
Date prepared	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Date analysed	-	16/01/2025	16/01/2025	16/01/2025	16/01/2025
Perfluorobutanesulfonic acid	µg/L	0.0070	0.013	0.0047	0.003
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0085	0.0097	0.0064	0.0043
Perfluorooctanesulfonic acid PFOS	µg/L	0.022	0.031	0.024	0.014
Perfluorooctanoic acid PFOA	µg/L	0.0074	0.013	0.013	0.0087
6:2 FTS	µg/L	0.0008	0.0005	0.0007	0.001
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	112	122	116	115
Surrogate $^{13}C_2$ *PFOA*	%	97	99	92	92
Extracted ISTD $^{13}C_3$ *PFBS*	%	69	69	73	79
Extracted ISTD $^{18}O_2$ *PFHxS*	%	95	99	88	96
Extracted ISTD $^{13}C_4$ *PFOS*	%	93	84	89	94
Extracted ISTD $^{13}C_4$ *PFOA*	%	56	54	51	57
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	77	77	72	80
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	136	128	136	138
Total Positive PFHxS & PFOS	µg/L	0.030	0.040	0.030	0.019
Total Positive PFOS & PFOA	µg/L	0.029	0.043	0.036	0.023
Total Positive PFAS	µg/L	0.046	0.066	0.048	0.032

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			16/01/2025	1	16/01/2025	17/01/2025		16/01/2025	[NT]
Date analysed	-			16/01/2025	1	16/01/2025	17/01/2025		16/01/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	18	22	20	87	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	20	22	10	87	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	94	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	81	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	86	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	86	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	85	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	95	1	96	96	0	93	[NT]
Surrogate Toluene-d8	%		Org-023	90	1	90	90	0	90	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	91	1	91	90	1	95	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	370423-2
Date extracted	-			15/01/2025	1	15/01/2025	15/01/2025		15/01/2025	15/01/2025
Date analysed	-			15/01/2025	1	15/01/2025	16/01/2025		15/01/2025	16/01/2025
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	89	94
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	91	106
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	99	118
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	89	94
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	91	106
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	99	118
Surrogate o-Terphenyl	%		Org-020	88	1	90	84	7	77	90

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	370423-2
Date extracted	-			15/01/2025	1	15/01/2025	15/01/2025		15/01/2025	15/01/2025
Date analysed	-			16/01/2025	1	16/01/2025	16/01/2025		16/01/2025	16/01/2025
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	87
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	82
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	87
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	87
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	88
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	87	94
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	77
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	79
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	97	1	92	92	0	84	95

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	370423-4
Date prepared	-			15/01/2025	1	15/01/2025	15/01/2025		15/01/2025	15/01/2025
Date analysed	-			15/01/2025	1	15/01/2025	15/01/2025		15/01/2025	15/01/2025
pH	pH Units		Inorg-001	[NT]	1	7.5	7.6	1	102	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	5500	5500	0	114	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	5.0	[NT]		105	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	10	[NT]		96	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	3.6	3.6	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1	[NT]		107	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.1	0.1	0	93	93
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.05	0.04	22	97	94
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.080	0.079	1	84	86
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.38	0.36	5	105	105
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.080	0.079	1	103	103
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.8	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.5	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	<0.001	[NT]		98	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	<0.001	1	<0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	370423-6
Date prepared	-			[NT]	2	15/01/2025	15/01/2025		[NT]	15/01/2025
Date analysed	-			[NT]	2	15/01/2025	15/01/2025		[NT]	15/01/2025
pH	pH Units		Inorg-001	[NT]	2	7.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	2	20000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	2	4.2	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	2	12	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	2	13	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	2	0.7	[NT]		[NT]	98
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.3	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.29	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.028	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	2	0.044	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	2	0.053	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	2	0.4	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	2	0.3	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	2	<0.001	<0.001	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	370423-6
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	2	<0.001	<0.001	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	5	15/01/2025	15/01/2025		[NT]	[NT]
Date analysed	-			[NT]	5	15/01/2025	15/01/2025		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	5	7.6	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	5	1900	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	5	2.3	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	5	<5	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	5	1.2	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	5	1.5	1.5	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	5	0.56	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	5	0.43	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	5	0.12	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	5	0.81	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	5	0.04	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	5	0.9	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	5	<0.2	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	5	<0.001	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.001	Inorg-118	[NT]	5	0.001	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	370423-2
Date prepared	-			16/01/2025	1	15/01/2025	15/01/2025		16/01/2025	15/01/2025
Date analysed	-			16/01/2025	1	15/01/2025	15/01/2025		16/01/2025	15/01/2025
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	100	82
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	88	101
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	83	98
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	83	111
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	82	103
Copper-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	83	97
Iron-Dissolved	µg/L	10	Metals-022	<10	1	240	250	4	81	97
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		109	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	160	170	6	82	108
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	82	100
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	88
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	9	10	11	82	101

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	370423-5
Date prepared	-			[NT]	4	15/01/2025	15/01/2025		[NT]	15/01/2025
Date analysed	-			[NT]	4	15/01/2025	15/01/2025		[NT]	15/01/2025
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	4	20	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	4	1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	4	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	4	2	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	4	110	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	91
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	4	62	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	4	9	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	9	15/01/2025	15/01/2025		[NT]	[NT]
Date analysed	-			[NT]	9	15/01/2025	15/01/2025		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	9	20	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	9	1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	9	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	9	<1	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	9	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	9	2	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	9	110	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	9	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	9	53	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	9	<1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	9	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	9	10	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	370423-3
Date prepared	-			16/01/2025	2	15/01/2025	15/01/2025		16/01/2025	16/01/2025
Date analysed	-			16/01/2025	2	15/01/2025	15/01/2025		16/01/2025	16/01/2025
Aluminium-Total	µg/L	10	Metals-022	<10	2	140	130	7	93	106
Arsenic-Total	µg/L	1	Metals-022	<1	2	2	2	0	88	105
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	85	100
Cobalt-Total	µg/L	1	Metals-022	<1	2	<1	<1	0	84	109
Chromium-Total	µg/L	1	Metals-022	<1	2	1	1	0	84	114
Copper-Total	µg/L	1	Metals-022	<1	2	4	4	0	85	102
Iron-Total	µg/L	10	Metals-022	<10	2	280	290	4	88	114
Mercury-Total	µg/L	0.05	Metals-021	<0.05	2	<0.05	[NT]		111	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	2	68	68	0	82	112
Nickel-Total	µg/L	1	Metals-022	<1	2	1	1	0	83	104
Lead-Total	µg/L	1	Metals-022	<1	2	2	2	0	97	89
Zinc-Total	µg/L	1	Metals-022	<1	2	32	33	3	83	104

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	370423-5
Date prepared	-			[NT]	4	15/01/2025	15/01/2025		[NT]	15/01/2025
Date analysed	-			[NT]	4	15/01/2025	15/01/2025		[NT]	15/01/2025
Aluminium-Total	µg/L	10	Metals-022	[NT]	4	260	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	4	2	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	4	<0.1	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	4	2	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	4	390	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	88
Manganese-Total	µg/L	5	Metals-022	[NT]	4	68	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	4	1	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	4	13	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	370423-4
Date prepared	-			15/01/2025	2	15/01/2025	15/01/2025		15/01/2025	15/01/2025
Date analysed	-			15/01/2025	2	15/01/2025	15/01/2025		15/01/2025	15/01/2025
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	2	0.2	0.3	40	96	106

QUALITY CONTROL: PFAS in Water TRACE Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			16/01/2025	[NT]	[NT]	[NT]	[NT]	16/01/2025	[NT]
Date analysed	-			16/01/2025	[NT]	[NT]	[NT]	[NT]	16/01/2025	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	93	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	109	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	108	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	102	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	81	[NT]	[NT]	[NT]	[NT]	82	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	76	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	81	[NT]	[NT]	[NT]	[NT]	81	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	72	[NT]	[NT]	[NT]	[NT]	72	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	68	[NT]	[NT]	[NT]	[NT]	87	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	76	[NT]	[NT]	[NT]	[NT]	107	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

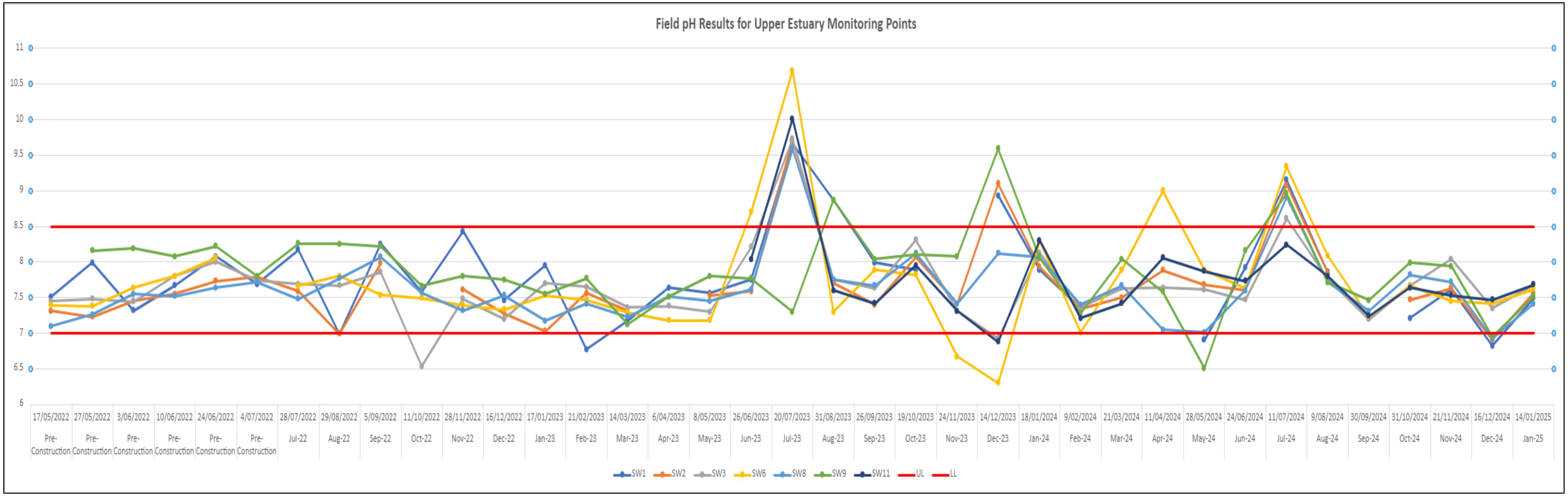
Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Attachment 4 – Summary Graphs of Exceedances


Field pH Results for Upper Estuary Monitoring Points
11
10.5
10
9.5
9
8.5
8
7.5
7
6.5
6
17/05/2022 Pre-Construction
27/05/2022 Pre-Construction
3/06/2022 Pre-Construction
10/06/2022 Pre-Construction
24/06/2022 Pre-Construction
4/07/2022 Pre-Construction
28/07/2022 Jul-22
29/08/2022 Aug-22
5/09/2022 Sep-22
11/10/2022 Oct-22
28/11/2022 Nov-22
16/12/2022 Dec-22
17/01/2023 Jan-23
21/02/2023 Feb-23
14/03/2023 Mar-23
6/04/2023 Apr-23
8/05/2023 May-23
26/06/2023 Jun-23
20/07/2023 Jul-23
31/08/2023 Aug-23
26/09/2023 Sep-23
19/10/2023 Oct-23
24/11/2023 Nov-23
14/12/2023 Dec-23
18/01/2024 Jan-24
9/02/2024 Feb-24
21/03/2024 Mar-24
11/04/2024 Apr-24
28/05/2024 May-24
24/06/2024 Jun-24
11/07/2024 Jul-24
9/08/2024 Aug-24
30/09/2024 Sep-24
31/10/2024 Oct-24
21/11/2024 Nov-24
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14/01/2025 Jan-25
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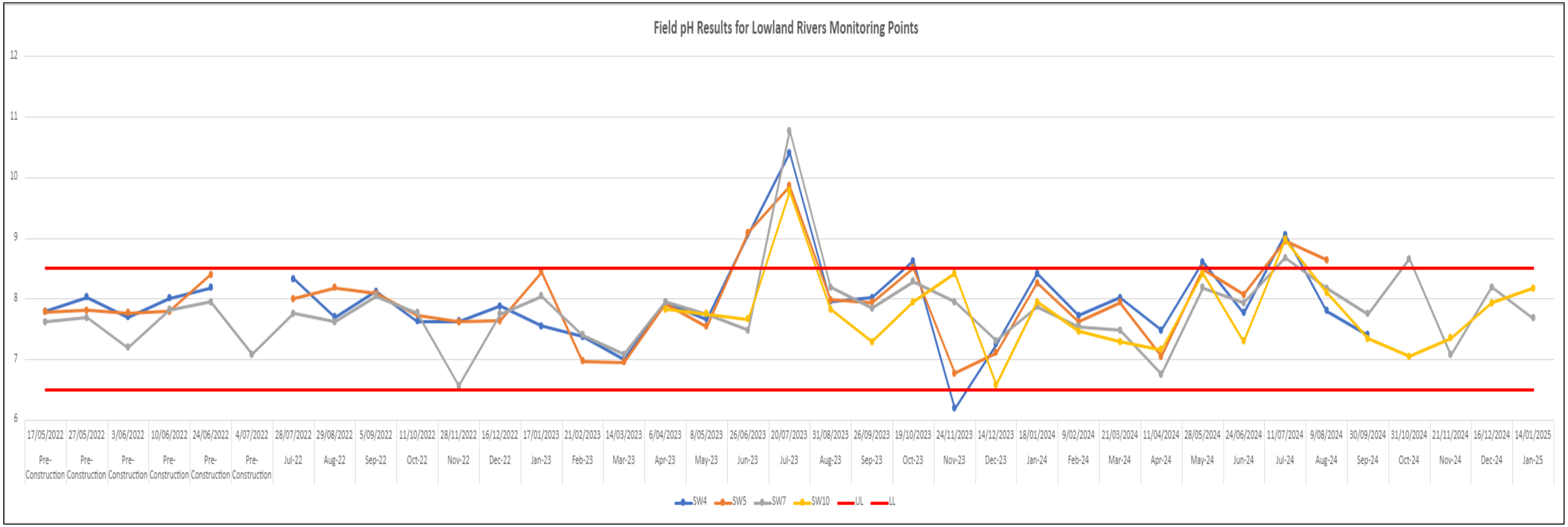
SW2
SW3
SW6
SW8
SW9
SW11
UL
LL


Field pH Results for Lowland Rivers Monitoring Points
12
11
10
9
8
7
6
17/05/2022 Pre-Construction
27/05/2022 Pre-Construction
3/06/2022 Pre-Construction
10/06/2022 Pre-Construction
24/06/2022 Pre-Construction
4/07/2022 Pre-Construction
28/07/2022 Jul-22
29/08/2022 Aug-22
5/09/2022 Sep-22
11/10/2022 Oct-22
28/11/2022 Nov-22
16/12/2022 Dec-22
17/01/2023 Jan-23
21/02/2023 Feb-23
14/03/2023 Mar-23
6/04/2023 Apr-23
8/05/2023 May-23
26/06/2023 Jun-23
20/07/2023 Jul-23
31/08/2023 Aug-23
26/09/2023 Sep-23
19/10/2023 Oct-23
24/11/2023 Nov-23
14/12/2023 Dec-23
18/01/2024 Jan-24
9/02/2024 Feb-24
21/03/2024 Mar-24
11/04/2024 Apr-24
28/05/2024 May-24
24/06/2024 Jun-24
11/07/2024 Jul-24
9/08/2024 Aug-24
30/09/2024 Sep-24
31/10/2024 Oct-24
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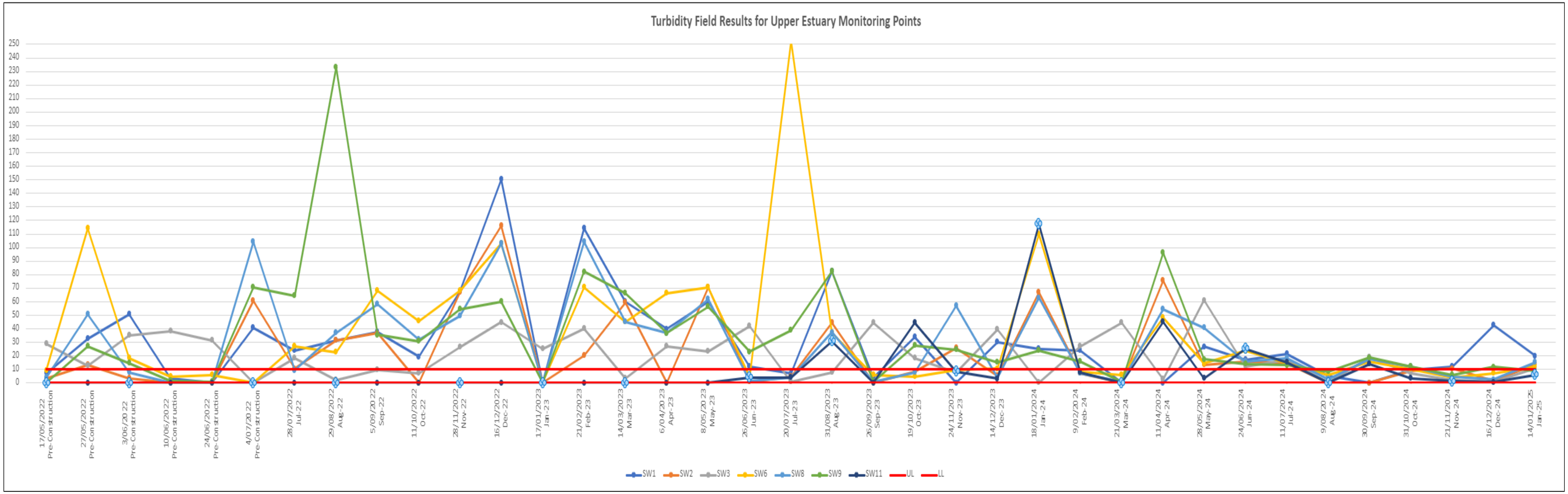
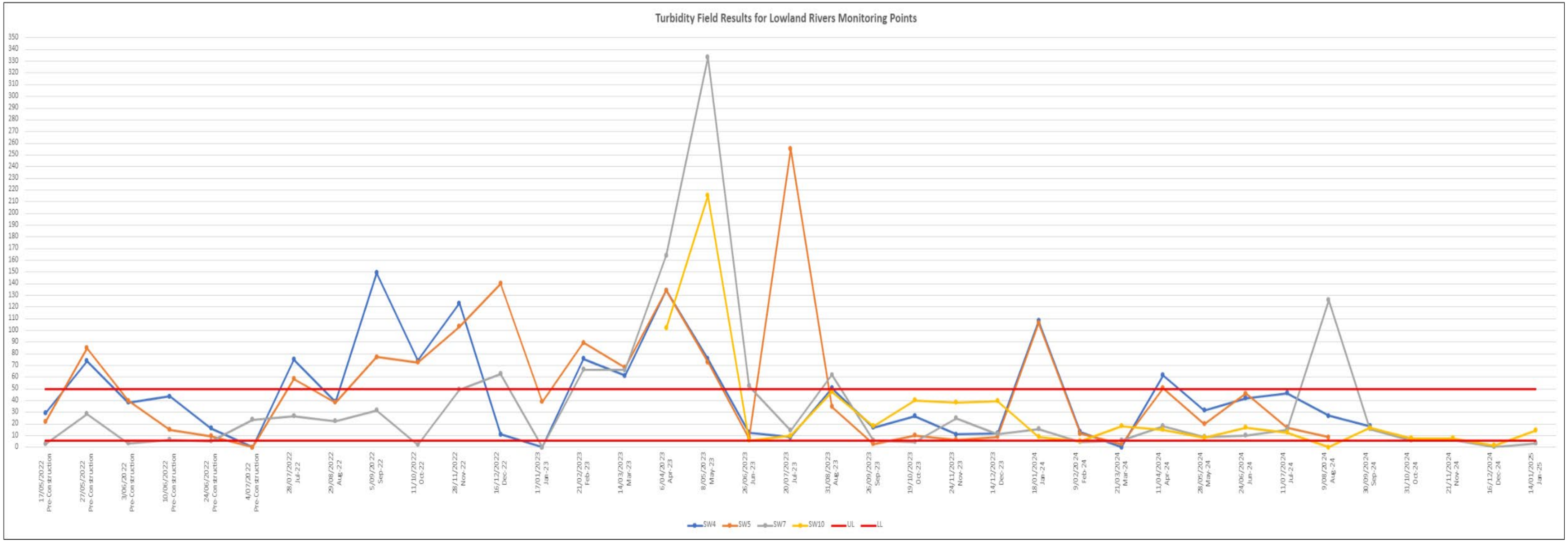
SW4
SW5
SW7
SW10
UL
LL


Turbidity Field Results for Upper Estuary Monitoring Points
SW1
SW2
SW3
SW6
SW8
SW9
SW11
UL
LL


Turbidity Field Results for Lowland Rivers Monitoring Points
SW4
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SW7
SW10
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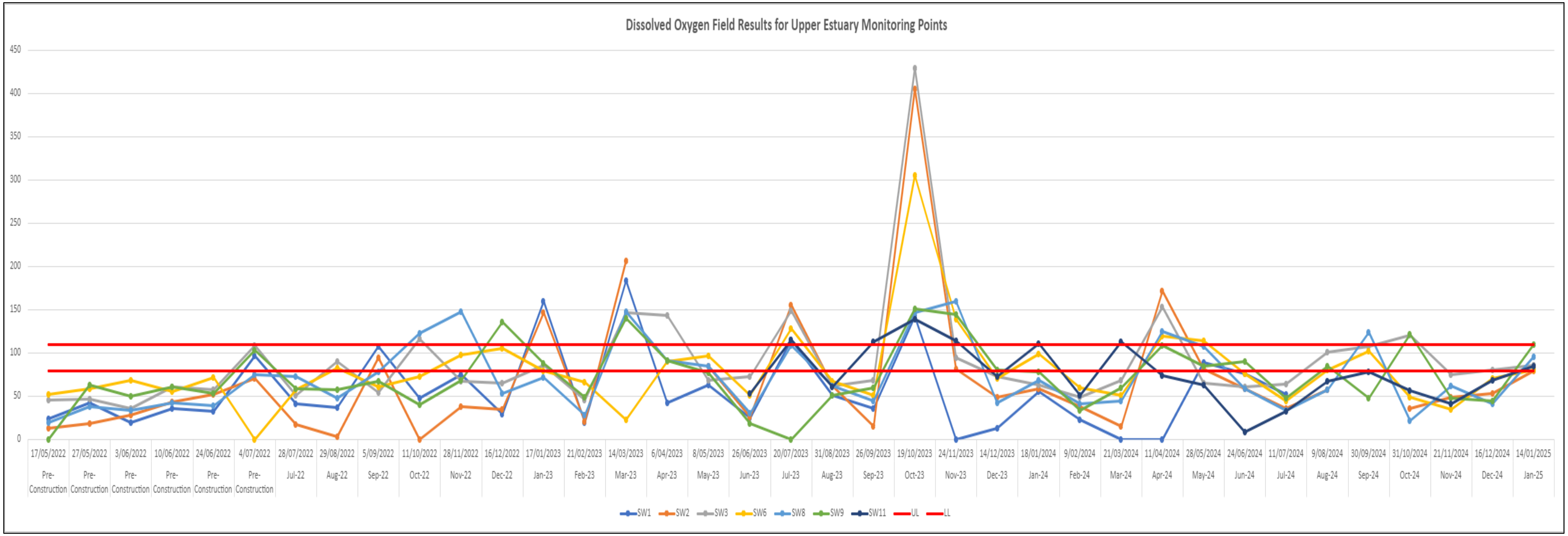
Dissolved Oxygen Field Results for Upper Estuary Monitoring Points
450
400
350
300
250
200
150
100
50
0
17/05/2022 Pre-Construction
27/05/2022 Pre-Construction
3/06/2022 Pre-Construction
10/06/2022 Pre-Construction
24/06/2022 Pre-Construction
4/07/2022 Pre-Construction
28/07/2022 Jul-22
29/08/2022 Aug-22
5/09/2022 Sep-22
11/10/2022 Oct-22
28/11/2022 Nov-22
16/12/2022 Dec-22
17/01/2023 Jan-23
21/02/2023 Feb-23
14/03/2023 Mar-23
6/04/2023 Apr-23
8/05/2023 May-23
26/06/2023 Jun-23
20/07/2023 Jul-23
31/08/2023 Aug-23
26/09/2023 Sep-23
19/10/2023 Oct-23
24/11/2023 Nov-23
14/12/2023 Dec-23
18/01/2024 Jan-24
9/02/2024 Feb-24
21/03/2024 Mar-24
11/04/2024 Apr-24
28/05/2024 May-24
24/06/2024 Jun-24
11/07/2024 Jul-24
9/08/2024 Aug-24
30/09/2024 Sep-24
31/10/2024 Oct-24
21/11/2024 Nov-24
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SW1
SW2
SW3
SW6
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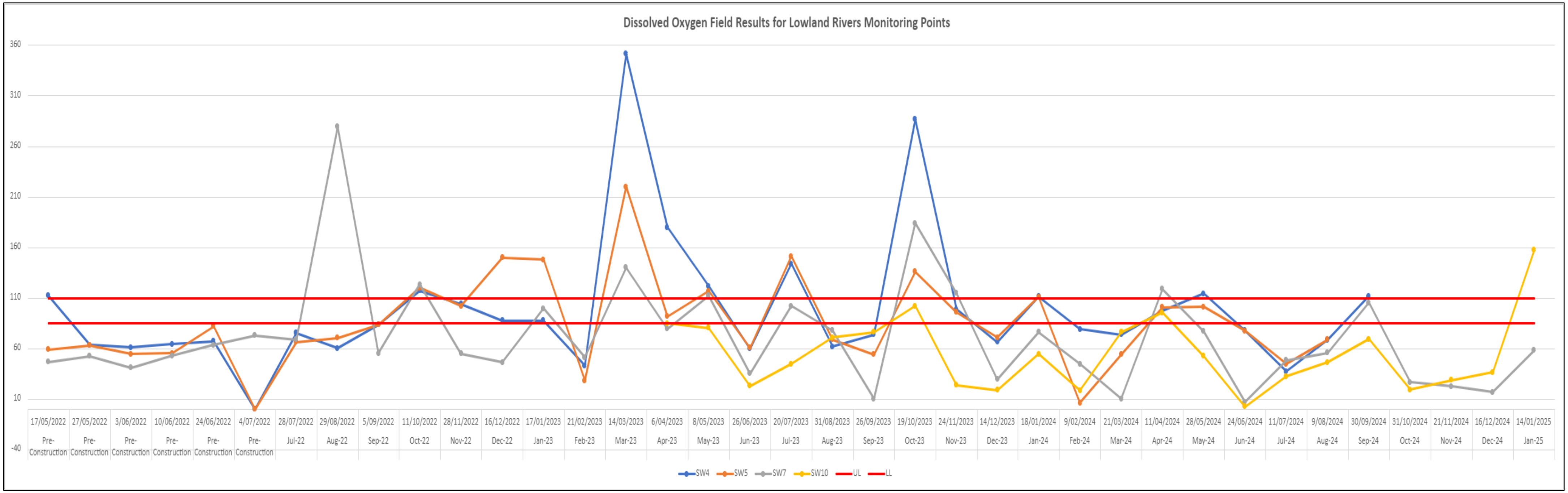
SW9
SW11
UL
LL


Dissolved Oxygen Field Results for Lowland Rivers Monitoring Points
360
310
260
210
160
110
60
10
-40
17/05/2022 Pre-Construction
27/05/2022 Pre-Construction
3/06/2022 Pre-Construction
10/06/2022 Pre-Construction
24/06/2022 Pre-Construction
4/07/2022 Pre-Construction
28/07/2022 Jul-22
29/08/2022 Aug-22
5/09/2022 Sep-22
11/10/2022 Oct-22
28/11/2022 Nov-22
16/12/2022 Dec-22
17/01/2023 Jan-23
21/02/2023 Feb-23
14/03/2023 Mar-23
6/04/2023 Apr-23
8/05/2023 May-23
26/06/2023 Jun-23
20/07/2023 Jul-23
31/08/2023 Aug-23
26/09/2023 Sep-23
19/10/2023 Oct-23
24/11/2023 Nov-23
14/12/2023 Dec-23
18/01/2024 Jan-24
9/02/2024 Feb-24
21/03/2024 Mar-24
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31/10/2024 Oct-24
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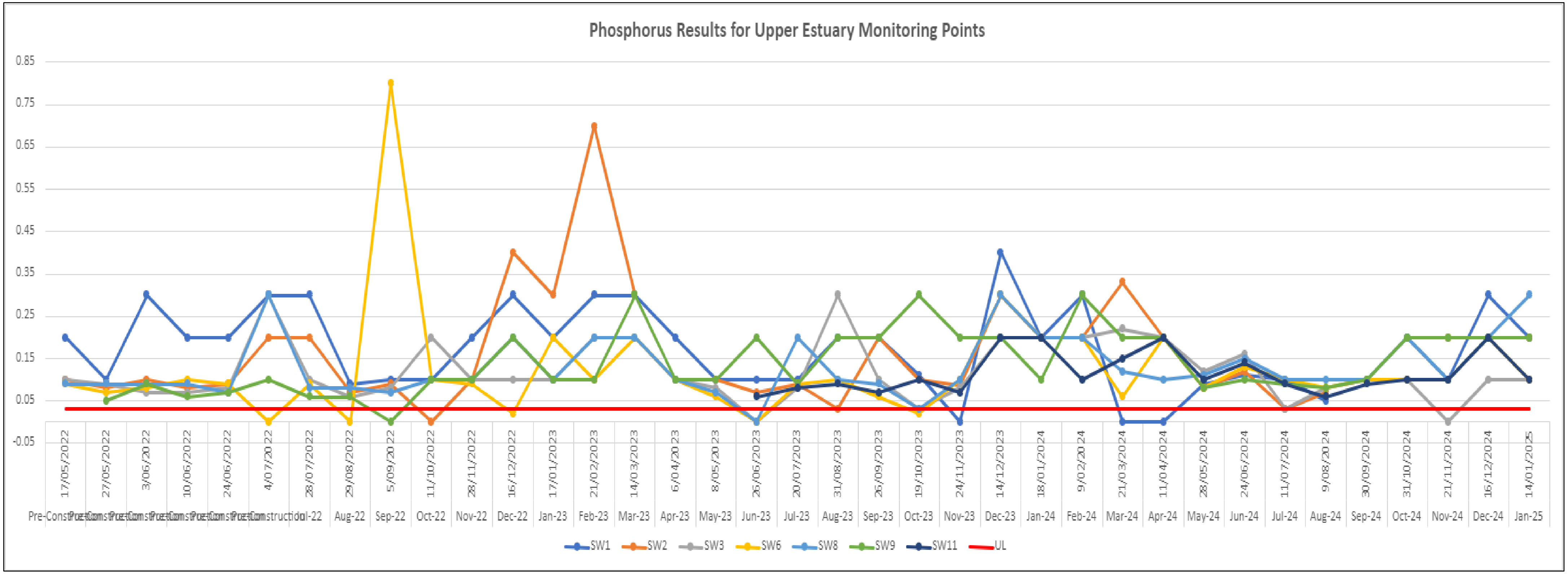
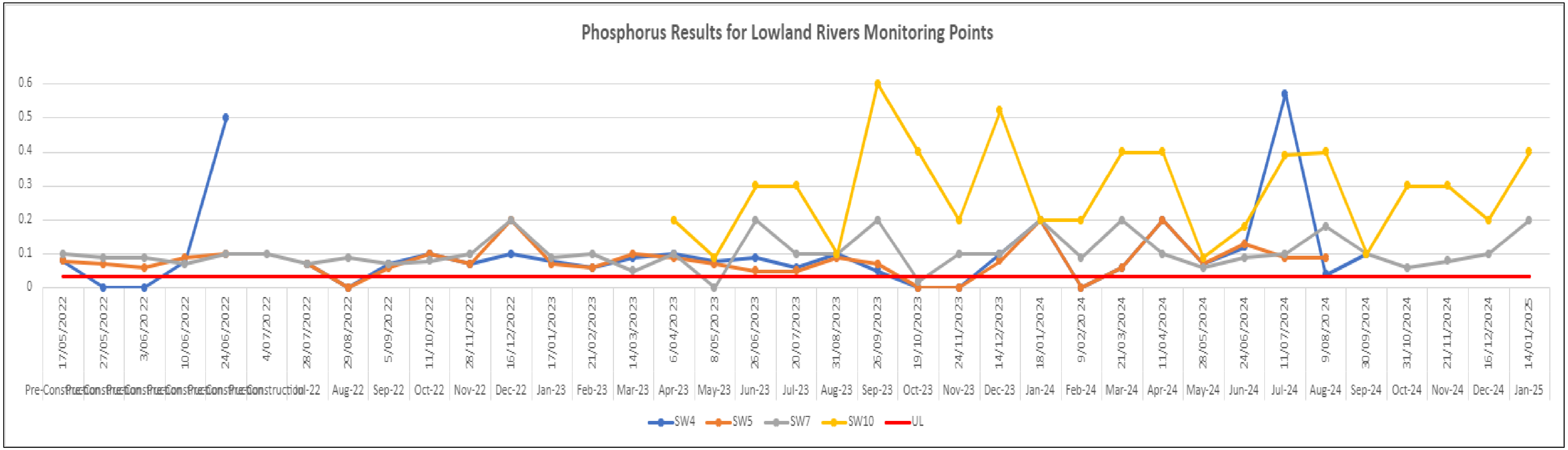
SW7
SW10
UL
LL



Phosphorus Results for Upper Estuary Monitoring Points
0.85
0.75
0.65
0.55
0.45
0.35
0.25
0.15
0.05
-0.05
SW1
SW2
SW3
SW6
SW8
SW9
SW11
UL



Phosphorus Results for Lowland Rivers Monitoring Points
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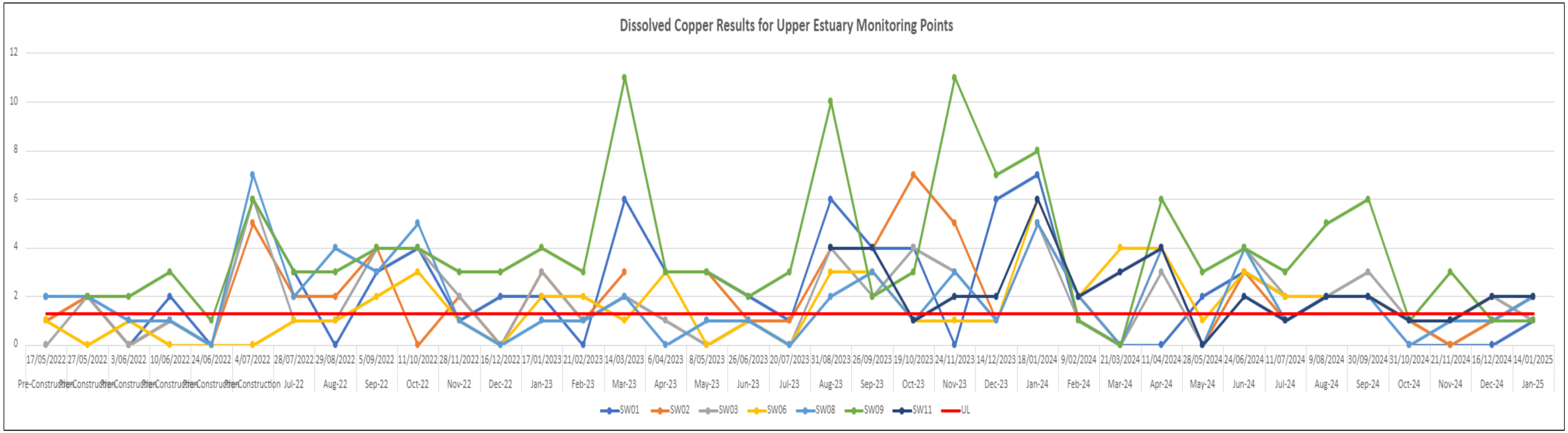
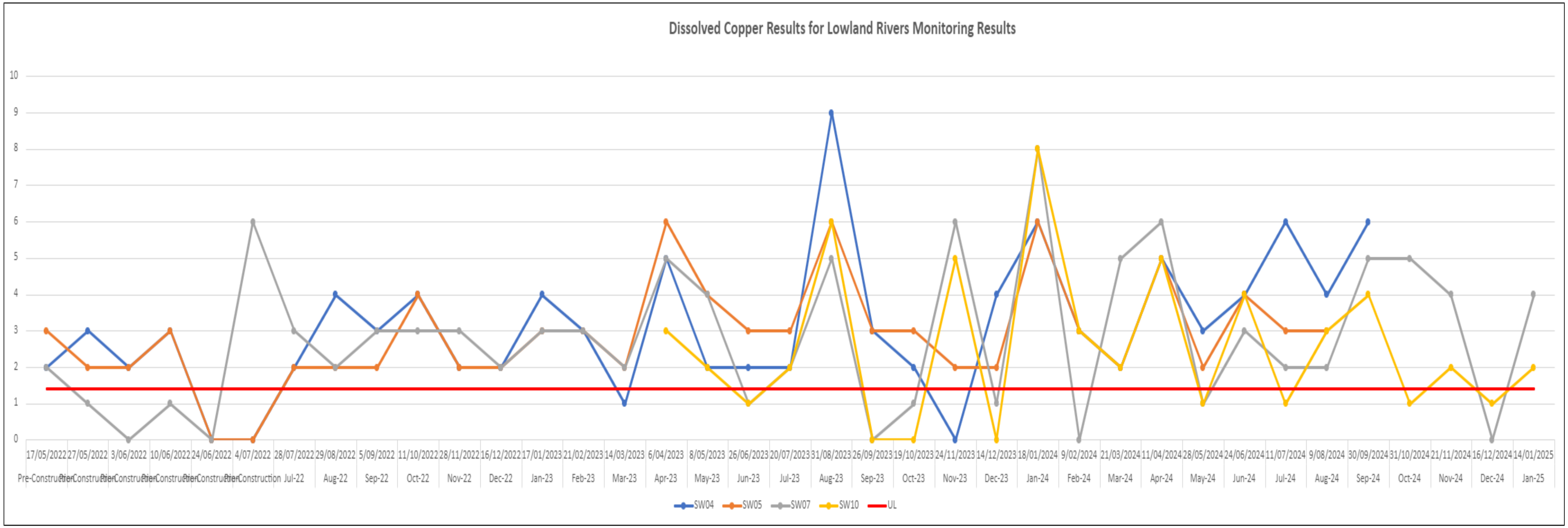
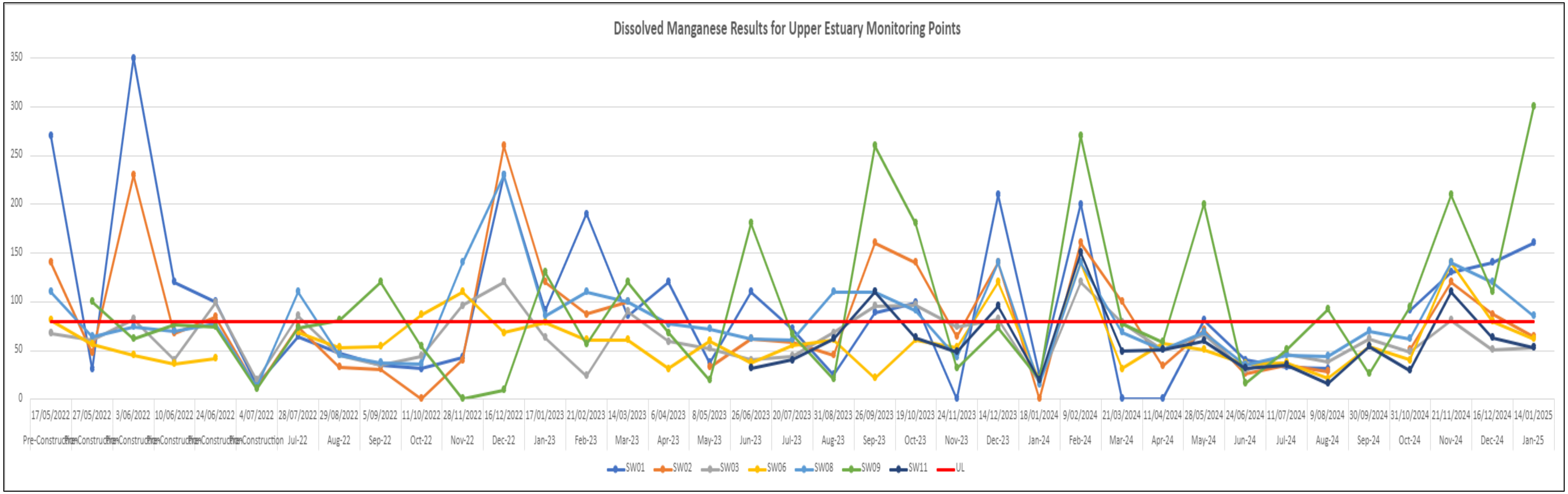
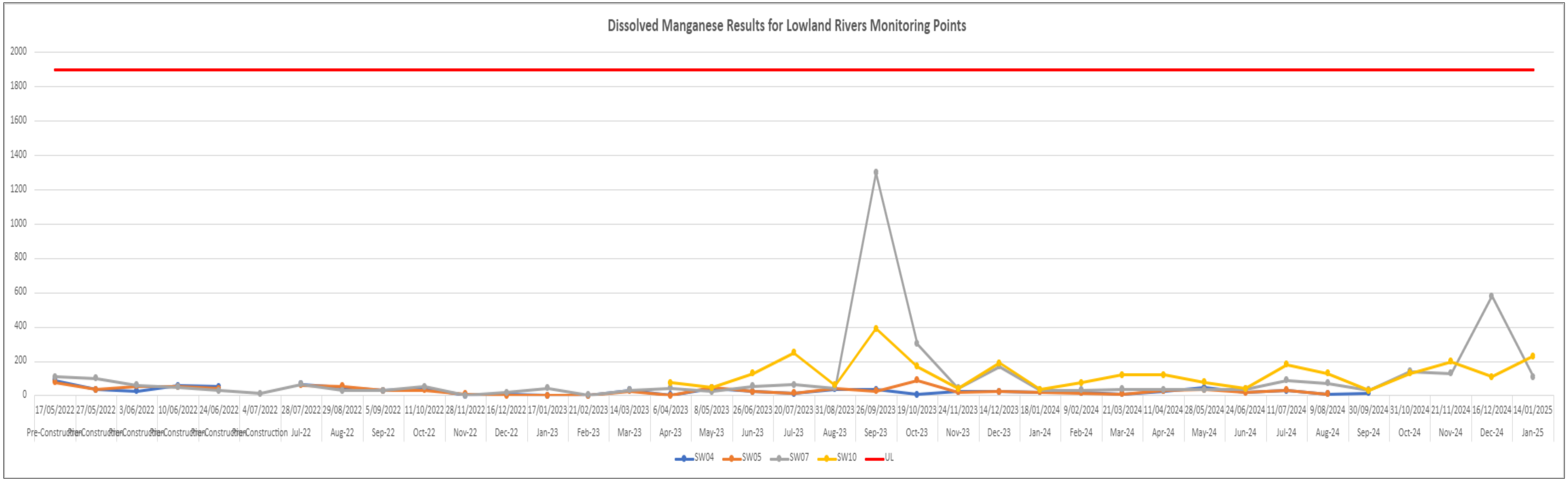
0.5
0.4
0.3
0.2
0.1
0
SW4
SW5
SW7
SW10
UL


Dissolved Copper Results for Upper Estuary Monitoring Points
12
10
8
6
4
2
0
17/05/2022 27/05/2022 3/06/2022 10/06/2022 24/06/2022 4/07/2022 28/07/2022 29/08/2022 5/09/2022 11/10/2022 28/11/2022 16/12/2022 17/01/2023 21/02/2023 14/03/2023 6/04/2023 8/05/2023 26/06/2023 20/07/2023 31/08/2023 26/09/2023 19/10/2023 24/11/2023 14/12/2023 18/01/2024 9/02/2024 21/03/2024 11/04/2024 28/05/2024 24/06/2024 11/07/2024 9/08/2024 30/09/2024 31/10/2024 21/11/2024 16/12/2024 14/01/2025
Pre-Construction Pre-Construction Pre-Construction Pre-Construction Pre-Construction Pre-Construction Jul-22 Aug-22 Sep-22 Oct-22 Nov-22 Dec-22 Jan-23 Feb-23 Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24 Aug-24 Sep-24 Oct-24 Nov-24 Dec-24 Jan-25
SW01 SW02 SW03 SW06 SW08 SW09 SW11 UL

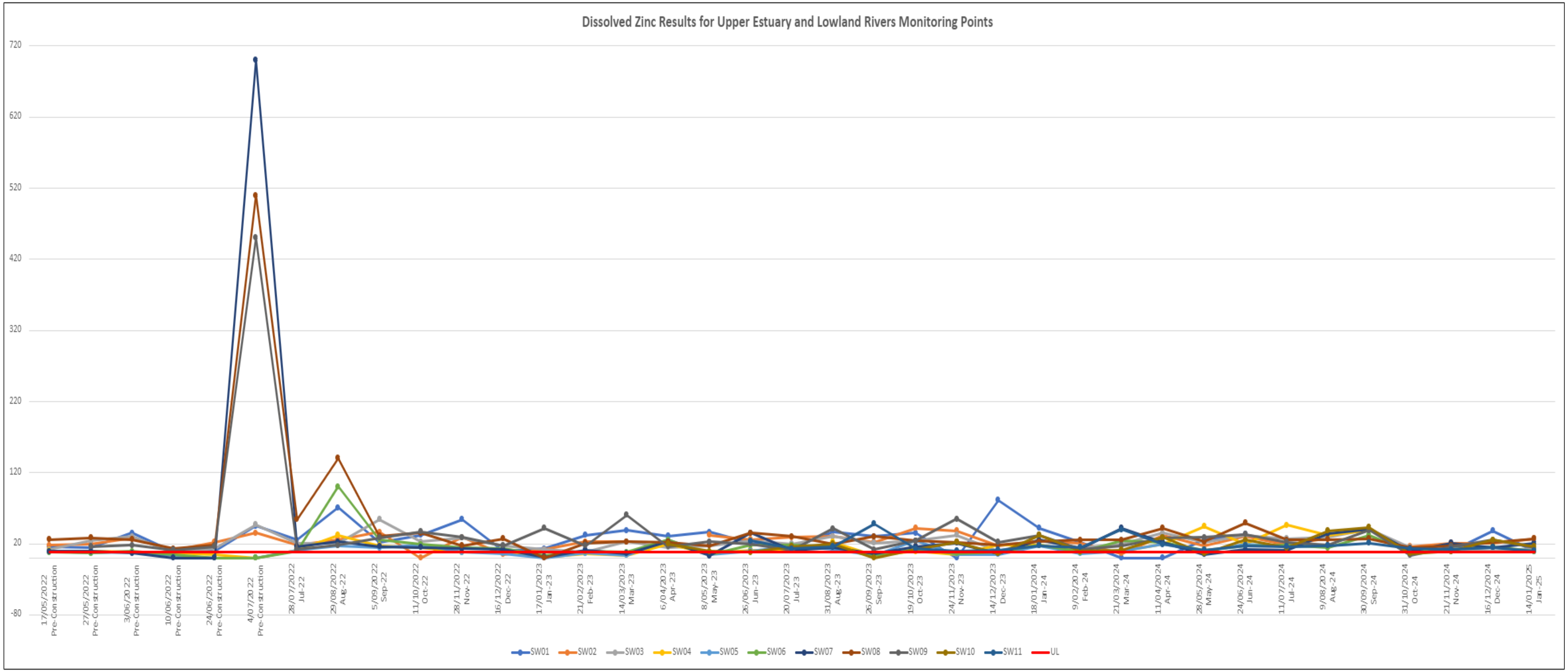

Dissolved Copper Results for Lowland Rivers Monitoring Results
10
9
8
7
6
5
4
3
2
1
0
17/05/2022 27/05/2022 3/06/2022 10/06/2022 24/06/2022 4/07/2022 28/07/2022 29/08/2022 5/09/2022 11/10/2022 28/11/2022 16/12/2022 17/01/2023 21/02/2023 14/03/2023 6/04/2023 8/05/2023 26/06/2023 20/07/2023 31/08/2023 26/09/2023 19/10/2023 24/11/2023 14/12/2023 18/01/2024 9/02/2024 21/03/2024 11/04/2024 28/05/2024 24/06/2024 11/07/2024 9/08/2024 30/09/2024 31/10/2024 21/11/2024 16/12/2024 14/01/2025
Pre-Construction Pre-Construction Pre-Construction Pre-Construction Pre-Construction Pre-Construction Jul-22 Aug-22 Sep-22 Oct-22 Nov-22 Dec-22 Jan-23 Feb-23 Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24 Aug-24 Sep-24 Oct-24 Nov-24 Dec-24 Jan-25
SW04 SW05 SW07 SW10 UL



Dissolved Manganese Results for Upper Estuary Monitoring Points
SW01
SW02
SW03
SW06
SW08
SW09
SW11
UL



Dissolved Manganese Results for Lowland Rivers Monitoring Points
SW04
SW05
SW07
SW10
UL


Dissolved Zinc Results for Upper Estuary and Lowland Rivers Monitoring Points
720
620
520
420
320
220
120
20
-80
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27/05/2022 Pre-Construction
3/06/2022 Pre-Construction
10/06/2022 Pre-Construction
24/06/2022 Pre-Construction
4/07/2022 Pre-Construction
28/07/2022 Jul-22
29/08/2022 Aug-22
5/09/2022 Sep-22
11/10/2022 Oct-22
28/11/2022 Nov-22
16/12/2022 Dec-22
17/01/2023 Jan-23
21/02/2023 Feb-23
14/03/2023 Mar-23
6/04/2023 Apr-23
8/05/2023 May-23
26/06/2023 Jun-23
20/07/2023 Jul-23
31/08/2023 Aug-23
26/09/2023 Sep-23
19/10/2023 Oct-23
24/11/2023 Nov-23
14/12/2023 Dec-23
18/01/2024 Jan-24
9/02/2024 Feb-24
21/03/2024 Mar-24
11/04/2024 Apr-24
28/05/2024 May-24
24/06/2024 Jun-24
11/07/2024 Jul-24
9/08/2024 Aug-24
30/09/2024 Sep-24
31/10/2024 Oct-24
21/11/2024 Nov-24
16/12/2024 Dec-24
14/01/2025 Jan-25
SW01
SW02
SW03
SW04
SW05
SW06
SW07
SW08
SW09
SW10
SW11
UL

Attachment C – Groundwater Monitoring Report

Groundwater Monitoring Six Monthly Report 5

Sydney Metro West – Western Tunnelling Package

20 July 2024 to 19 January 2025

ISSUE DATE: APRIL 2025

Document Details

Document Title	**Groundwater Monitoring Six Monthly Report 5**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Document Reference No.	**SMWSTWTP-GLO-1NL-EN-RPT-000016**
Principal Contractor	**Gamuda Engineering (Australia)**
ABN	**36 636 433 522**
Project Address	**L8, 60 Station Street, Parramatta NSW 2150**

Document Authorisation

Revision	Date	Description of changes	Prepared by	Reviewed by
Rev A	14/03/2025	First Issue to GLC	Jonathan Pickerden (Epic) Tahli Moore (GLC) Dylan Greeff (GLC)	Hussain Nilar (GLC)
Rev B	02/04/2025	Update in response to ER/SM Comments	Jonathan Pickerden (Epic) Hussain Nilar (GLC)	Hussain Nilar (GLC)

TABLE OF CONTENTS

Terms and Definitions

Term	Definition
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
COC	Chain of Custody
CoPC	Contaminants of Potential Concern
CTD	Conductivity, Temperature and Depth
DO	Dissolved Oxygen
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPHI	Department of Planning, Housing, and Infrastructure (formerly DPE)
EC	Electrical Conductivity
EIS	Environmental Impact Statement
GIL	Groundwater Investigation Level
GLC	Gamuda Australia – Laing O'Rourke Consortium
GMP	Groundwater Monitoring Program
GWMW	Groundwater Monitoring Well
mAHD	Meters Australian Height Datum
MCoA	Ministers Conditions of Approval (SSI 10038)
mBTOC	Meters Below Top of Casing
MSF	Maintenance and Stabling Facility
NEPM	National Environmental Protection Measure
ORP	Oxidation Redox Potential
RPD	Relative Percent Difference
SMW	Sydney Metro West
SWL	Standing Water Level
TDS	Total Dissolved Solids
TOC	Top of Casing
WHS	Work Health and Safety Management
WTP	Western Tunnelling Package (The Project)

1 INTRODUCTION

Project Description

Sydney Metro West (SMW) is a new underground railway connecting Greater Parramatta and the Sydney CBD. It will provide fast connections between greater Sydney's two major business centres as well as providing better access to the growing business and entertainment precincts in Olympic Park and Pyrmont, the health and medical research hub at Westmead and the future business and tourism site at The Bays.

An Environmental Impact Statement (EIS) (Jacobs/Arcadis, 2020) for the Concept and Stage 1 assessed the groundwater impacts in response to the Secretary Environmental Assessment Requirements issued by the NSW Department of Planning, Housing, and Infrastructure (DPHI). The Project was approved on 11 March 2021 (SSI 10038).

Sydney Metro is delivering the Sydney Metro West project via several different packages, including the Western Tunnelling Package (WTP, the Project). Figure 1 is an overview map outlining the extent of the Project.

1.1 Groundwater Monitoring Objective

The objective of the six-monthly groundwater monitoring report is to ensure that impacts to groundwater over the monitoring period (20 July 2024 to 19 January 2025) are minimised during construction of the Western Tunnelling Package (WTP). Additionally, the report aims to ensure that all works are undertaken in compliance with the project requirements detailed in the Groundwater Monitoring Program (SMWSTWTP-GLO-1NL-EN-PRG-000002, Rev. D) and the Groundwater Management Plan (SMWSTWTP-GLO-1NL-EN-PLN-000002, Rev. D).

This report combines results from the groundwater monitoring and sampling events completed by Epic Environmental (Epic), and results from the Water Treatment Plant testing completed by Gamuda Australia – Laing O'Rourke Consortium (GLC). This report details the results from the reporting period 20 July 2024 to 19 January 2025.

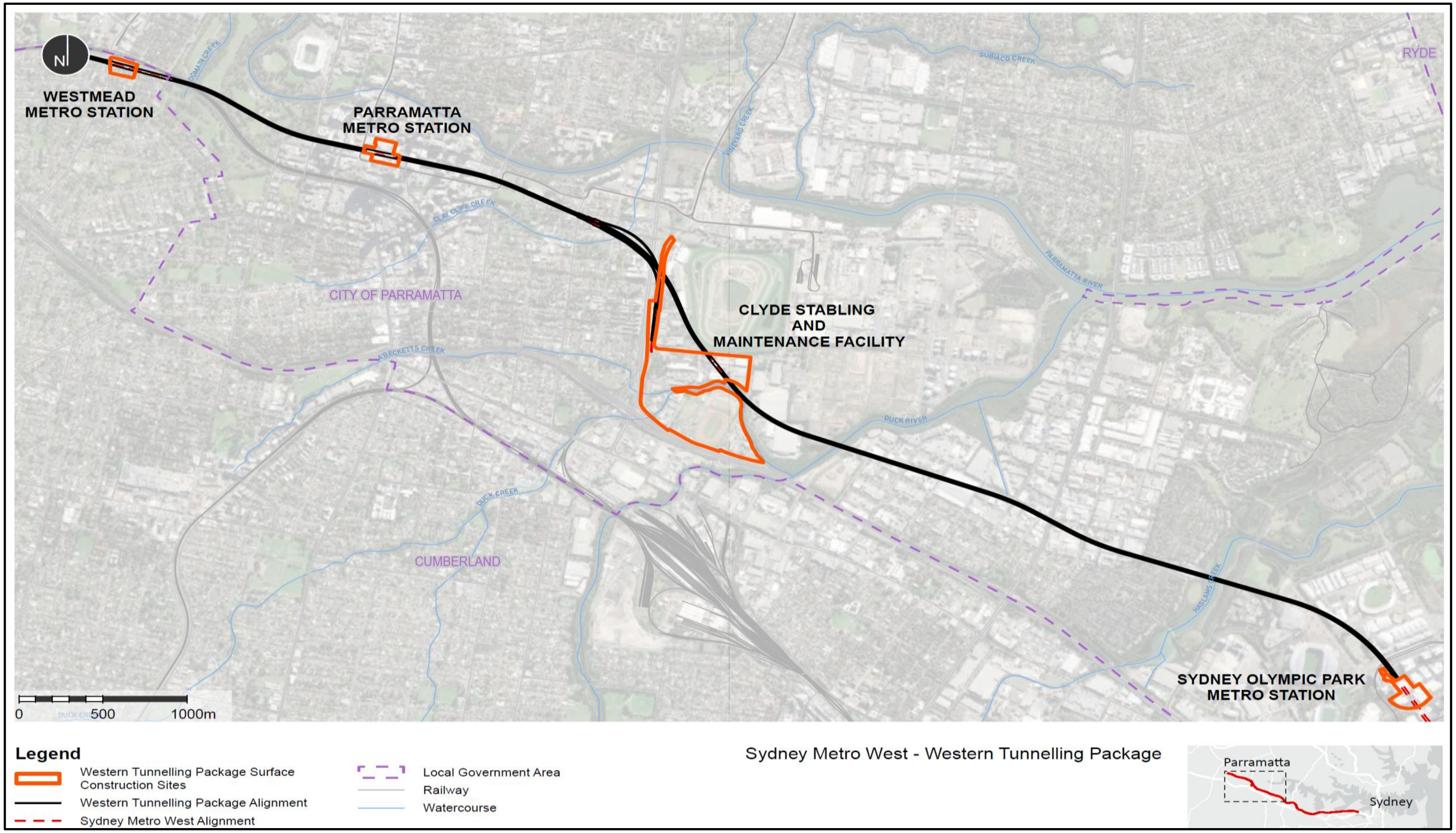


Figure 1 WTP Project Map Overview

1.2 Project Requirements

The Groundwater Monitoring Program (GMP) sets out the requirement to develop and issue a Groundwater Monitoring Report (this report), collating groundwater monitoring data. This report collates groundwater monitoring undertaken during the previous six months of construction, from 20 July 2024 to 19 January 2025. Groundwater monitoring event (GME) data from August 2024 and October 2024 are included within this report.

The Project requirements relevant to the preparation of this Groundwater Monitoring Report are identified in **Table 1**. A document reference is also included to indicate where the requirement is addressed in this Groundwater Monitoring Report or other documents. Additional monitoring requirements outlined in the GMP and in the Groundwater Management Plan (GWMP) are also listed in **Table 1**.

Table 1 Monitoring Report and Compliance Matrix

Reference	Requirement	Document Reference
Condition of Approval (MCoA) C23	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	This document
Revised Environmental Mitigation Measure (REMM) GW3	Additional site investigations would be carried out at creeks or surface water bodies where the additional data review in GW2 shows there is a likely surface water/groundwater interaction. This would involve baseline monitoring of creek flows (streamflow gauging) prior to construction, and baseflow streamflow analysis to confirm the existing groundwater baseflow contribution to streamflow for each creek. Where a significant reduction in baseflow is predicted due to Stage 1, design responses would be implemented at station and shaft excavations to reduce potential baseflow loss.	Surface water monitoring report
REMM GW4	Monitoring of groundwater levels and quality at the site area would occur before, during and after construction. This would also include monitoring of potential contaminants of concern. Groundwater level data would be regularly reviewed during and after construction by a qualified hydrogeologist. Groundwater monitoring data would be provided to the NSW Environment Protection Authority and Department of Planning, Industry, Environment, Water and the Natural Resources Access Regulator for information.	This document (Section 5)
Groundwater Monitoring Program (SMWSTWTP-GLO-1NL-EN-PRG-000002)	Pressure transducers with digital dataloggers will be installed (or maintained from the baseline monitoring phase) in selected standpipe piezometers within and around the predicted radius of drawdown for the project to provide continuous data collection. The dataloggers will be programmed to record at hourly intervals.	Section 5.3
	Selected standpipe piezometers will include transducers with fitted with EC sensors to record groundwater salinity for monitoring of potential saline intrusion where potential risks exist.	Section 3.1.1 and 5.3.2
	All pressure transducers will be set at a depth lower than the predicted minimum water table elevation, accounting for natural variations and artificially induced drawdown. Any transducers with EC sensors shall be set within the screened interval for accurate assessment of groundwater salinity. Data loggers will be checked and maintained as necessary before being re-calibrated, decontaminated and then returned to the monitoring bore at a known depth below the top of casing.	Section 5.3 and Appendix C – Hydrographs

Reference	Requirement	Document Reference
	The static groundwater level will be measured and recorded at each standpipe piezometer each month using an oil/water interface probe to verify the continuous data recorded by dataloggers and identify any non-aqueous phase liquid (NAPL) contamination.	Section 5.3.1
	Recorded data will be compensated for barometric pressure and converted to a groundwater level measurement. Measurements will be recorded in metres below top of casing (mbTOC) and converted to metres below ground level (mBGL) and metres Australian Height Datum (mAHD).	Appendix C – Hydrographs
	Groundwater monitoring will be overseen by personnel with appropriate qualifications and experience. Trained field personnel will complete monitoring rounds using appropriate personal protective equipment (PPE) and calibrated monitoring equipment.	Section 3
	All groundwater level data will be compared to local rainfall records to assess recharge response and identify any potential adverse effects from construction activities.	Appendix C – Hydrographs
	In accordance with the Aquifer Interference Policy (AIP) minimal impact considerations, groundwater level and pore pressures will be assessed against the following criteria where appropriate (DPI-Water, 2012): • Less than or equal to 10 % cumulative variation in the water table, allowing for typical climatic “post-water sharing plan” variations, 40 m from any: – high priority groundwater dependent ecosystem; or – high priority culturally significant site listed in the schedule of the relevant water sharing plan. A cumulative maximum of 2 m decline in water level or pore pressure at any water supply bore	Section 5.3.2
	Groundwater quality monitoring will be undertaken as an initial event prior to construction and on a quarterly (3 month) basis thereafter.	Section 3
	The quarterly sampling will test for all parameters tested in the baseline monitoring report, to provide ongoing monitoring of groundwater conditions and assess any potential changes in groundwater quality which may have occurred as a result of the construction activities or other local events.	Section 3
	Sampling frequencies for water quality parameters will be increased to monthly sampling in the event that laboratory testing results identify any exceedances of the trigger values from the initial baseline monitoring event or during quarterly sampling round. The NEPM (2013) GILs and ANZG (2018) DGVs for 95% and 99% species protection have been adopted as trigger values on which monthly sampling requirements will be based.	Section 5.5.1
	Dedicated dataloggers with specifications allowing the measurement of pressure, temperature, and electrical conductivity (EC) will be installed in selected monitoring bores. Electrical conductivity (EC) results will be assessed to detect changes in water quality that may indicate the intrusion of saline water towards the station boxes and shafts.	Section 3.1.1 Section 5.3.2
	The groundwater inflow monitoring will account for groundwater take from the Sydney Basin Central Groundwater Source in accordance with MCoA C17(j). Results of this accounting will be included in the six-monthly monitoring reports.	Section 5.4
	All data from construction water treatment plants will be reported in the six-monthly water monitoring report.	Section 5.5
	Grab samples will be collected manually from the water treatment plant locations once a month to verify that water from the treatment plants remain below the trigger values for parameters.	Section 5.5

Reference	Requirement	Document Reference
	Water quality results from the water treatment plants will be analysed monthly, along with an overview of corrective actions. The monitoring results will be compared against the requirements for discharge from the EPL and ANZECC (2000) 95% or 99% (for toxicants that bioaccumulate) species protection level. If water quality monitoring from water treatment plants identifies a potential compliance issue, the following actions will be taken: • Higher frequency monitoring will be undertaken to verify the compliance issue is persistent and not a result of a transient event or reporting error. • If compliance issues persist, then – A pollution incident will be reported to NSW EPA – Appropriate management actions will be taken, including but not limited to discharge to sewer under a trade waste agreement, and/or transport of effluent by tanker to an offsite licenced liquid waste disposal facility	Section 5.5 Section 5.6
	Where in-line sensors or monitoring identify treatment plant performance drift outside of the required criteria, the treatment plant may be shut down (if necessary) and/or measures will be implemented to return the plant performance back into the required range. In these instances, water will be discharged to trade waste (where permitted), recycled or disposed offsite at an appropriate licenced liquid waste facility.	Section 3.5

2 DESCRIPTION OF WORKS

The construction activities that took place during the reporting period are outlined in **Table 2.**

Table 2 Construction Activities undertaken during the reporting period

Site	Construction activities
Westmead	Operation of Water Treatment Plant (no offsite discharge) Instrumentation and monitoring works within and adjacent to site Delivery of plant and equipment Off-site spoil haulage General operation of ancillary facilities Station Box excavation and support works Form, reinforcement and concrete pours Mined tunnel excavation and support works
Parramatta	Operation of Water Treatment Plant Instrumentation and monitoring works within and adjacent to site Removal and/or relocating utilities General operation of ancillary facilities Form, reinforcement and concrete pours Internal haul road and station box temporary bridge construction Archaeological excavation and clearance Station box excavation and ground support including strut and waler install Tunnel nozzle construction from station box to the east Delivery of plant and equipment Off-site spoil haulage
Clyde Dive[1]	Bulk earthworks within dive structure General operation of ancillary facilities Mined tunnel excavations Concreting works for dive structure base slabs and deflection wall Form, reinforcement and concrete pours Waterproofing and lining of tunnels Assembly and operation of Lining Erection Machine to line spur tunnels Grout pump station operation Service identification
Clyde MSF[1]	Construction and maintenance of haul roads and site amenities Bulk earthworks Construction of Water conveyance structures Construction of Unwin Street diversion General operation of ancillary facilities Ground improvement works Utility adjustment works Vegetation removal Off-site spoil haulage Creek diversions Contamination remediation
Rosehill[1]	Tunnel Boring Machine excavation Spoil haulage Form, reinforcement and concrete pours Delivery of equipment and segments

Site	Construction activities
	General operation of ancillary facility Water treatment plant operation Grout plant operation
Sydney Olympic Park	Preparation works within station box for tunnel boring machine breakthrough Instrumentation and monitoring works within and adjacent to site Tunnel boring machine breakthrough, retrieval and dismantling works Tunnel nozzle construction and concreting works General operation of ancillary facilities

[1] The Clyde Maintenance and Stabling Facility (MSF) consists of three sub-sites, including the Clyde Dive, the MSF and Rosehill construction sites.

3 MONITORING METHODOLOGY

The following activities were undertaken during the August and October GMEs:

- Preparation of relevant Work Health and Safety Management (WHS) documentation and management of site access
- Mobilisation to site to undertake groundwater level monitoring and groundwater quality sampling at selected accessible groundwater monitoring wells (GWMWs)
- Laboratory analysis of collected samples for Contaminants of Potential Concern (CoPC)
- Assessment of analytical results against groundwater level performance criteria/guideline values (August 2024, October 2024 GMEs)
- Assessment of analytical results against existing groundwater quality performance criteria/guideline values (August 2024, October 2024 GMEs)
- Assessment of analytical results against updated groundwater quality performance criteria/guideline values (August 2024, October 2024 GMEs)
- Preparation of factual groundwater monitoring reports (August 2024, October 2024 GMEs)
- Preparation of a reportable changes risk assessment for groundwater quality reportable changes identified in the October 2024 GME

3.1 Groundwater Monitoring Network

The original proposed groundwater monitoring network consisted of a total of 75 monitoring locations including eight (8) vibrating wire piezometers (VWPs). This network would allow for continued monitoring of shallow and deep groundwater levels during both the construction and post-construction phases of the project and would allow the assessment of any changes in groundwater levels resulting from tunnel and shaft drainage.

During the August and October 2024 GMEs, a number of the proposed GWMWs from the July 2022 baseline monitoring round were either inaccessible and/or destroyed as a result of construction works. Alternative GWMWs, installed as part of the Detailed Site Investigations (undertaken by Epic) were used as replacement GWMWs. These alternative GWMWs were assessed as being appropriate to meet the monitoring program objectives due to their location and geology of the screened interval.

GLC do not undertake in depth groundwater monitoring in the vicinity of the Sydney Olympic Park construction site on account Acciona Ferrovial Joint Venture (AFJV) currently have possession of these wells and report any impacts observed as part of their GWMoP. GLC confirmed this arrangement with the AFJV Completions Manager via email correspondence on 23/10/2024, to prevent unnecessary duplication of findings. This arrangement is also supported by the negligible risk to groundwater imposed by GLC's scope of works at SOP. This is on account TBM activities alone are unlikely to affect groundwater drawdown, unlike Station Box excavation works which have been completed by AFJV at the SOP site (Technical Paper 7 Section 5.12.1).

The groundwater monitoring network accessed during the August and October 2024 GMEs is presented in **Table 3** and shown in **Appendix A – Figures**. None of the network comprises VWPs.

Table 3 Groundwater Monitoring Well Network

Round	Monitoring zone	GWMW ID	July 2022 baseline GWMW?	Monitoring date	Water quality	Manual water level	Level logger	Access issues / destroyed
August 2024	Clyde MSF	CZ1_BH13	N	6/08/2024	X	X	X	-
August 2024	Clyde MSF	SMW_WTP_BH25_s	Y	6/08/2024	X	X	-	-
August 2024	Clyde MSF	SMW_WTP_BH25_w	Y	6/08/2024	X	X	X	-
August 2024	Clyde MSF	SMW_ENV226_s	N	12/08/2024	X	X	-	-
August 2024	Clyde MSF	CZ5_MW09	N	6/08/2024	X	X	-	-
August 2024	Clyde MSF	CZ5a_MW102	N	02/09/2024	X	X	-	-
August 2024	Clyde MSF	CZ5a_MW103	N	02/09/2024	X	X	-	-
August 2024	Clyde MSF	CZ1_MW500_w	N	-	-	-	-	X
August 2024	Clyde MSF	CZ1_MW501_w	N	-	-	-	-	X
August 2024	Clyde MSF	CZ1_MW502_w	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV149_w	Y	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV148_w	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV231	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV232A	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV229_w	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV227_w	N	-	-	-	-	X
August 2024	Clyde MSF	GALC-MW12	N	-	-	-	-	X
August 2024	Clyde MSF	CZ5_MW16	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV226_w	N	-	-	-	-	X
August 2024	Clyde MSF	SMW_ENV146	N	-	-	-	-	X

Round	Monitoring zone	GWMW ID	July 2022 baseline GWMW?	Monitoring date	Water quality	Manual water level	Level logger	Access issues / destroyed
August 2024	Rosehill	SMW_ENV145_w	Y	7/08/2024	X	X	X	-
August 2024	Rosehill	SMW_WTP_BH13_w	Y	7/08/2024	X	X	-	-
August 2024	Rosehill	SMW_BH010_w	Y	7/08/2024	-	X	X	-
August 2024	Rosehill	CZ4e_MW03	N	7/08/2024	X	X	-	-
August 2024	Rosehill	CZ4e_MW02	N	7/08/2024	X	X	-	-
August 2024	Clyde Dive	SMW_ENV039_w	Y	7/08/2024	X	X	X	-
August 2024	Clyde Dive	GALC-MW18	N	8/08/2024	X	X	-	-
August 2024	Clyde Dive	GALC-MW16_s	N	8/08/2024	-	X	-	-
August 2024	Clyde Dive	GALC-MW16_w	N	8/06/2024	X	X	-	-
August 2024	Clyde Dive	GALC-MW17	N	8/08/2024	-	X	-	-
August 2024	Clyde Dive	SMW_ENV009_w	Y	19/08/2024	X	X	X	-
August 2024	Clyde Dive	SMW_BH057_w	Y	19/08/2024	X	X	X	-
August 2024	Clyde Dive	SMW_BH057_s	Y	19/08/2024	X	X	X	-
August 2024	Clyde Dive	SMW_ENV010_w	Y	19/08/2024	-	X	-	-
August 2024	Clyde Dive	SMW_ADD_BH02_w	Y	19/08/2024	-	X	X	-
August 2024	Parramatta	SMW_BH004_s	Y	9/08/2024	X	X	X	-
August 2024	Parramatta	SMW_BH004_w	Y	9/08/2024	-	X	X	-
August 2024	Parramatta	SMW_BH002_w	Y	12/08/2024	-	X	X	-
August 2024	Parramatta	GALC-MW26	N	12/08/2024	-	X	-	-
August 2024	Parramatta	GALC-MW26A	N	12/08/2024	-	X	-	-
August 2024	Parramatta	GALC-MW32	N	12/08/2024	-	X	-	-

Round	Monitoring zone	GWMW ID	July 2022 baseline GWMW?	Monitoring date	Water quality	Manual water level	Level logger	Access issues / destroyed
August 2024	Parramatta	GALC-MW32A	N	-	-	-	-	X
August 2024	Parramatta	GALC-MW33	N	12/08/2024		X	-	-
August 2024	Parramatta	PM_BH14	N	12/08/2024	X	X	X	-
August 2024	Parramatta	PM_BH15	N	12/08/2024	X	X	-	-
August 2024	Parramatta	GALC-MW31	N	12/08/2024	-	X	-	-
August 2024	Parramatta	PM_BH57	N	-	-	-	-	X
August 2024	Parramatta	PM_BH21	N	-	-	-	-	X
August 2024	Westmead	SMW_BH008_w	Y	8/08/2024	-	X	X	-
August 2024	Westmead	GALC-MW47	N	8/08/2024	-	X	-	-
August 2024	Westmead	GALC-MW38	N	8/08/2024	-	X	-	-
August 2024	Westmead	SMW_WTP_BH02_w	Y	9/08/2024	X	X	-	-
August 2024	Westmead	SMW_WTP_BH03A_w	Y	9/08/2024	X	X	X	-
August 2024	Westmead	GALC-MW54	N	9/08/2024	-	X	X	-
August 2024	SOP	SMW_WTP_BH22_w	N	9/08/2024	-	X	X	-
August 2024	SOP	SMW_WTP_BH23_w	N	9/08/2024	-	X	-	-
October 2024	Clyde MSF	CZ1_BH13	N	23/10/202	X	X	X	-
October 2024	Clyde MSF	SMW_ENV226_s	N	22/10/2024		X		-
October 2024	Clyde MSF	SMW_WTP_BH25_w	Y	22/10/2024	X	X	X	-
October 2024	Clyde MSF	SMW_WTP_BH25_s	Y	22/10/2024	X	X	-	-
October 2024	Clyde MSF	CZ1_D35_MW02	N	23/10/2024	-	X	-	-
October 2024	Clyde MSF	CZ5_MW09	N	23/10/2024	X	X	-	-

Round	Monitoring zone	GWMW ID	July 2022 baseline GWMW?	Monitoring date	Water quality	Manual water level	Level logger	Access issues / destroyed
October 2024	Clyde MSF	CZ5a_MW101	N	24/10/2024	-	X	-	-
October 2024	Clyde MSF	CZ5a_MW103	N	24/10/2024	X	X	-	-
October 2024	Clyde MSF	CZ5a_MW104	N	24/10/2024	X	X	-	-
October 2024	Clyde MSF	CZ5a_MW105	N	24/10/2024	X	X	-	-
October 2024	Clyde MSF	CZ1_MW500_w	N	-	-	-	-	X
October 2024	Clyde MSF	CZ1_MW501_w	N	-	-	-	-	X
October 2024	Clyde MSF	CZ1_MW502_w	N	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV149_w	Y	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV148_w	Y	-	-	-	-	X
October 2024	Clyde MSF	CZ1_D35_MW01	N	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV231	Y	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV232A	Y	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV229_w	Y	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV227_w	N	-	-	-	-	X
October 2024	Clyde MSF	GALC-MW12	N	-	-	-	-	X
October 2024	Clyde MSF	CZ5_MW16	N	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV226_w	N	-	-	-	-	X
October 2024	Clyde MSF	CZ1_BH71	N	-	-	-	-	X
October 2024	Clyde MSF	SMW_WTP_BH41	N	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV250	N	-	-	-	-	X
October 2024	Clyde MSF	SMW_ENV044	N	-	-	-	-	X

Round	Monitoring zone	GWMW ID	July 2022 baseline GWMW?	Monitoring date	Water quality	Manual water level	Level logger	Access issues / destroyed
October 2024	Clyde MSF	SMW_ENV146	N	-	-	-	-	X
October 2024	Clyde MSF	CZ5a_MW102	N	-	-	-	-	X
October 2024	Rosehill	SMW_WTP_BH13_w	Y	22/10/2024	X	X	-	-
October 2024	Rosehill	SMW_ENV145_w	Y	23/10/2024	X	X	X	-
October 2024	Rosehill	SMW_BH010_w	Y	23/10/2024	-	X	X	-
October 2024	Rosehill	CZ4e_MW02	N	25/10/2024	X	X	X	-
October 2024	Rosehill	CZ4e_MW03	N	25/10/2024	X	X	-	-
October 2024	Rosehill	SMW_ENV042_w	Y	25/10/2024	-	X	-	-
October 2024	Clyde Dive	GALC-MW17	N	17/10/2024	-	X	-	-
October 2024	Clyde Dive	SMW_ADD_BH02_w	Y	17/10/2024	-	X	X	-
October 2024	Clyde Dive	SMW_BH057_s	Y	17/10/2024	X	X	X	-
October 2024	Clyde Dive	SMW_BH057_w	Y	17/10/2024	X	X	X	-
October 2024	Clyde Dive	SMW_ENV010_w	Y	21/10/2024	X	X	-	-
October 2024	Clyde Dive	SMW_ENV009_w	Y	21/10/2024	X	X	X	-
October 2024	Clyde Dive	GALC-MW16_s	N	22/10/2024	-	X	-	-
October 2024	Clyde Dive	GALC-MW16_w	N	22/10/2024	X	X	-	-
October 2024	Clyde Dive	SMW_ENV039_w	Y	23/10/2024	X	X	X	-
October 2024	Clyde Dive	GALC-MW18	N	-	-	-	-	X
October 2024	Parramatta	SMW_BH004_w	Y	18/10/2024	-	X	X	-
October 2024	Parramatta	SMW_BH004_s	Y	18/10/2024	X	X	X	-
October 2024	Parramatta	PM_BH14	N	21/10/2024	X		X	-

Round	Monitoring zone	GWMW ID	July 2022 baseline GWMW?	Monitoring date	Water quality	Manual water level	Level logger	Access issues / destroyed
October 2024	Parramatta	PM_BH15	N	21/10/2024	X	X		-
October 2024	Parramatta	GALC-MW31	N	21/10/2024	-	X	-	-
October 2024	Parramatta	GALC-MW32	N	21/10/2024	-	X	-	-
October 2024	Parramatta	GALC-MW33	N	21/10/2024	-	X	-	-
October 2024	Parramatta	SMW_BH002_w	Y	21/10/2024	-	X	X	-
October 2024	Parramatta	GALC-MW26A	N	21/10/2024	-	X	-	-
October 2024	Parramatta	GALC-MW26	N	21/10/2024	-	X	-	-
October 2024	Parramatta	PM_BH57	N	-	-	-	-	X
October 2024	Parramatta	PM_BH21	N	-	-	-	-	X
October 2024	Parramatta	GALC-MW32A	N	-	-	-	-	X
October 2024	Westmead	GALC-MW54	N	17/10/2024	-	X	X	-
October 2024	Westmead	GALC-MW38	N	18/10/2024	-	X	-	-
October 2024	Westmead	SMW_WTP_BH02_w	Y	18/10/2024	X	X	X	-
October 2024	Westmead	SMW_WTP_BH03A_w	Y	18/10/2024	X	X	X	-
October 2024	SOP	SMW_WTP_BH22_w	N	18/10/2024	-	X	X	-
October 2024	SOP	SMW_WTP_BH23_w	N	18/10/2024	-	X	-	-

3.1.1 Salinity Monitoring Network

Saline intrusion into the station boxes is monitored through:

- Groundwater sample analysis
- Installation of continuous conductivity, temperature, and depth (CTD) loggers.

Presented in **Table 4** are the locations of where salinity loggers have been installed, these were installed during the January 2023 GME.

Table 4 Saline intrusion Groundwater Monitoring Wells

Site	GWMW ID	Screened depth (mbTOC)	Justification
Parramatta	SMW_BH004_w	20.6 – 23.6	Located north of the station box, to address potential salinity ingress from the Parramatta River
Clyde Dive	SMW_BH057_w	23.3 – 26.3	To address potential salinity ingress from dewatering of the dive structure
Clyde MSF	SMW_BH010_w	23.5 – 26.5	To address potential salinity ingress from dewatering of the box structure
Rosehill	SMW_ENV145_w	11.0 – 14.0	To address potential salinity ingress from dewatering of the box structure

3.2 Gauging and Sampling Methodology

Water levels were gauged using a 30 m electronic interface probe (IP) during inspection and/or groundwater sampling. Selected monitoring bores, as specified in **Table 3**, were equipped with water level loggers (LevelSCOUT, Solinst, InSitu Troll 100, or InSitu Troll 400) to collect continuous groundwater measurements.

The methodology of the groundwater quality and level monitoring are presented in **Table 5**.

Table 5 Groundwater Quality and Level Monitoring Methodology

Action	Description/details
Sample collection objectives	Groundwater quality sampling was undertaken by suitably qualified personnel, in accordance with AS/NZS 5667.11:1998 (Water quality – sampling), with the chosen methodology achieving the following objectives: • Sampling equipment should not change the water quality in any way; particular effort was made to avoid cross contamination between GWMWs and appropriate decontamination methods were adopted where reusable equipment was utilised. • Sufficient water should be removed to ensure the sample is obtained from the aquifer itself rather than from water that is potentially stagnant in the GWMW. • Methods of collection, storage bottles and transportation to the laboratory should suit the type of analysis required.
Gauging and water levels	Water levels were gauged using a 30 m IP. Selected monitoring bores were equipped with water level loggers (Solinst, In Situ Troll 100, or In Situ Troll 400) to collect continuous groundwater measurements. Where GWMWs were sampled, the standing water level (SWL) and total depth (TD) were gauged manually prior to purging, using a cleaned/decontaminated IP.

Action	Description/details
Sampling equipment	Samples were collected using the following equipment: • Peristaltic pump and GWMW specific tubing (HDPE and silicon), or • Hydrasleeve, or • Disposable bailer. The predominant method for sampling was via peristaltic pump. Hydrasleeves and disposable bailers were used for deep GWMWs (where the SWL was beyond the working range of the peristaltic pump).
Purging, field measurements and observations	A low-flow standard operating procedure compliant with AS/NZ 5667.11.1998 was developed for the project to ensure that samples are taken consistently in the same way and at the same depth. Field measurements for physical groundwater parameters were taken using a flow cell and calibrated water quality meter (WQM) fitted with a multi-sensor probe (pH, electrical conductivity (EC), dissolved oxygen (DO), temperature, and oxidation reduction potential (ORP)) during purging. A physical description of the sample, including colour, turbidity (visual), odour, and presence of film, sheen or foam were recorded on standardised field sheets. Field parameters were measured in a flow cell to avoid contact between the groundwater and the atmosphere. Readings of field parameters were recorded at a minimum of every three (3) minutes (where the sampling rate was 100 mL/minute or more) or five minutes (if flow rate was less than 100 mL/minute) until parameters stabilised. Stabilisation is defined as three successive stable parameter readings within the limits defined below: • Dissolved Oxygen (DO) ± 10% of reading or ± 0.2 mg/L • Temperature ± 0.2 °C • pH ± 0.2 pH units • EC ± 3% of reading • ORP ± 20 mV
Sample containers	Groundwater samples were stored in clean laboratory prepared bottles containing the appropriate preservatives.
Sample filtration	Samples for dissolved metal analysis were filtered through a 0.45 µm in-line filter and stored in laboratory prepared bottles containing nitric acid preservative.
Sampling records	Field sampling records were recorded on Survey123 (digital) using unique sampling identification nomenclature consisting of the sample identification, sample date, location, and sampler details. Daily field sheets are presented in **Appendix D – Field Data Sheets** Details of all water quality samples were recorded on the field sheets and laboratory chain of custody (COC) documents.
Decontamination	Equipment was cleaned periodically and between sampling locations to prevent a build-up of sediment and prevent cross-contamination. The following methodology was followed: • Rinse the equipment in tap water • Clean with a 1:100 ratio of Liquinox (PFAS free decontamination detergent concentrate) to deionised water • Rinse with tap water • Thorough rinse with laboratory supplied deionised water • Allow to dry away from dust and direct sunlight
Sample Labelling, Storage and Transport	All samples were clearly labelled with unique identification numbers consisting of the date, sample location and samplers' initials. All samples were bagged and kept in an ice filled Esky prior to dispatch and during transport to a NATA registered laboratory, under chain-of-custody procedures.

3.3 Laboratory Analysis

Groundwater samples were sent to NATA accredited laboratories for analysis of selected CoPC as listed below:

- General water quality parameters – EC, Total dissolved solids (TDS), Alkalinity, Hardness
- Major Ions – Calcium, Magnesium, Potassium, Bicarbonate, Sodium, Chloride, Sulfate
- Extended Heavy Metals Suite – Arsenic (As), Cadmium (Cd), Chromium III (Cr(III)), Chromium VI (Cr(VI)), Copper (Cu), Mercury (Hg), Lead (Pb), Nickel (Ni), Zinc (Zn), Manganese (Mn), Iron (Fe)
- Nutrients – Total Nitrogen, Total Oxidised Nitrogen, Nitrate, Nitrite, Ammonia, Total Phosphorous, Total Reactive Phosphorous, Total Kjeldahl Nitrogen
- Total petroleum hydrocarbons (TPH) – C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total)
- Total recoverable hydrocarbons (TRH) – C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
- Aromatic Hydrocarbons (BTEXN) – Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Per- and Poly-Fluoroalkyl Substances (PFAS) - Perfluorobutane sulfonic acid (PFBS), Perfluorohexane sulfonic acid (PFHxS), Perfluorooctanesulfonic acid (PFOS), Perfluorooctanoic acid (PFOA) Quality Assurance/Quality Control Plan

The following quality assurance (QA) and quality control (QC) protocols were proposed for the monitoring program in accordance with protocols outlined in the Project Construction Groundwater Monitoring Program (GLC, 2024) which references the following guidelines/standards.

- Australian/New Zealand Standards (1998). Water Quality – Sampling Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples. AS/NZS 5667.1:1998, Reconfirmed 2016. Standards Australia, NSW.
- Australian/New Zealand Standards (1998). Water Quality – Sampling Part 11: Guidance on Sampling of Groundwater. AS/NZS 5667.11.1998, Reconfirmed 2016. Standards Australia, NSW.
- HEPA (2020) PFAS National Environmental Management Plan Version 2.0

Details of QA/QC procedures are presented in **Table 6**.

Table 6 QA/QC procedures

Action	Description/details
Rinsate samples	Rinsate blanks were collected from the IP during each day of sampling Rinsate blank samples were collected at a rate of one per day of sampling or where uncertainty regarding the potential for contamination was noted.
Duplicate samples	Intra- and inter-laboratory duplicate samples were analysed at a rate of greater than one per ten primary samples (10%), respectively. The results on the duplicate sampling (RPDs) are presented in **Appendix B – Tables**
Trip blank and trip spikes	A sample of laboratory supplied deionised water accompanied the primary samples over the course of the fieldworks and was submitted to the laboratory for analysis. A laboratory prepared trip blank and trip spike sample was included at a rate of one per laboratory batch.

Action	Description/details
Equipment calibration	Equipment used during monitoring was calibrated prior to use. Calibration records are presented in **Appendix F – Calibration Certificates**
Laboratory QA/QC	Laboratory analysis was conducted in accordance with the standard test methods outlined in Schedule B(3) of the NEPM (NEPC, 2013), US EPA, APHA or equivalent modified methods supported by adequate quality control. Laboratory analysis was undertaken by NATA accredited laboratories, Envirolab Services and ALS Laboratory Group. As part of Epic's internal quality control, all the information collected from the laboratory was checked. The results of both laboratories have been assessed and validated progressively using recognised QA procedures and the analytical data is considered of sufficient quality to allow environmental interpretive use. Data validation sheets for each laboratory batch are presented in **Appendix E – Laboratory Documentation**

3.4 Water Treatment Plants

During the reporting period (20 July 2024 to 19 January 2025), the Rosehill Permanent Water Treatment Plant, Parramatta Construction Water Treatment Plant and Westmead Permanent Water Treatment Plants were operational across the project.

3.4.1 Operations during the reporting period

3.4.1.1 Rosehill temporary Water Treatment Plant

The Rosehill temporary water treatment plant, identified as Point 2 under EPL 21676, was decommissioned in July 2023 and later removed from the EPL. There was no water discharged from this plant during the reporting period.

3.4.1.2 Westmead Permanent Water Treatment Plant

The Westmead permanent water treatment plant, identified as Point 3, was commissioned on 10th January 2024. It was operating to discharge until 19th January 2024. Following this, the demand to reuse treated water onsite matched that of the supply from the water treatment plant and there has been no discharge to the environment since.

Inflow to the Westmead Permanent Water Treatment Plant comprised of minimal groundwater, stormwater runoff and reused industrial process water from tunnelling activities, dust suppression and plant/vehicle washdown on-site. No sampling events occurred during the reporting period.

3.4.1.3 Rosehill Water Treatment Plant

The Rosehill Permanent Water Treatment Plant is identified as Point 4 under EPL 21676. Commissioning of the Rosehill Water Treatment Plant occurred on 8th August 2023, only post-commissioning sampling results are reported in this document. Eleven (11) sampling events occurred during the reporting period.

Inflow to the Rosehill Permanent Water Treatment Plant comprised of groundwater, stormwater runoff collecting in excavation areas, and washdown water.

3.4.1.4 Parramatta Construction Water Treatment Plant

The Parramatta construction water treatment plant, identified as Point 5, was commissioned on 8th March 2024. 8 sampling events have occurred during the reporting period.

Inflow to the Parramatta Construction Water Treatment Plant comprised of minimal groundwater, stormwater runoff and reused industrial process water from excavation activities, dust suppression and plant/vehicle washdown on-site.

Over the reporting period, there have been two periods where the demand to reuse treated water on-site has matched that of supply from the water treatment plant which resulted in a suspension of water being discharged from the Parramatta Metro construction site to the environment. When on-site demand was reduced, water quality monitoring was undertaken, and continuous discharge recommenced in accordance with the requirements of EPL 21676.

3.4.2 Water sampling methodology

The following was undertaken as part of the Water Treatment Plant post-commissioning sampling:

- Conduct pre- and post-treatment water sampling.
- Laboratory analysis of collected samples.
- Assessment of analytical results against performance criteria/guideline values.
- Preparation of Water Treatment Plant performance reports in accordance with condition E2.1 of the EPL 21676.

A pre- and post-treatment grab sample was collected for each sampling event, at least once a month. The pre-treatment sample was collected from the pre-treatment storage tank, and the post-treatment sample was collected from an in-line valve located between the final filter pod and discharge tank. Dedicated sampling containers were provided by a NATA accredited laboratory and were filled by a trained GLC Environmental personnel in accordance with laboratory specified requirements. Samples were delivered to the laboratory under chain of custody protocols and submitted for analysis for the list of analytes stipulated in condition L2, for the respective discharge points in the EPL 21676. Where an analyte is observed to be inconsistent with the relevant discharge criteria, the process and measures detailed in Section 9.1.2 of the GWMoP would be implemented.

4 PERFORMANCE CRITERIA

4.1 Groundwater Level Monitoring

Seasonal fluctuations in groundwater level that were observed in the EIS and supplementary reports, have been used as a basis to determine whether changes in groundwater levels (specifically drawdown) can be attributed to dewatering activities associated with construction of the project.

In accordance with the Aquifer Interference Policy (AIP) minimal impact considerations, groundwater level and pore pressures will be assessed against the following criteria where appropriate (DPI-Water, 2012):

Less than or equal to 10 % cumulative variation in the water table, allowing for typical climatic "post-water sharing plan" variations, 40 m from any:

- *high priority groundwater dependent ecosystem*
- *high priority culturally significant site listed in the schedule of the relevant water sharing plan*
- *A cumulative maximum of 2 m decline in water level or pore pressure at any water supply bore*

The nearest high priority groundwater dependent ecosystems (GDEs) and water supply bores are summarised in **Table 7.** These were identified in Jacobs (2020) Technical Paper 7 (Hydrogeology).

Table 7 Groundwater Sensitive Receptors

Site	High priority GDE	Nearest water supply bore
Westmead	Grey Box - Cumberland Plain Woodland 220m E	GW108378 780 m NNW
Parramatta	Grey Box - Cumberland Plain Woodland 590m WNW	GW108661 565 m NNW
Clyde Dive	Salt Marsh Estuaries of the Sydney Basin Bioregion 1.4 km SE	GW107659 1.9 km WNW
Clyde – Rosehill	Salt Marsh Estuaries of the Sydney Basin Bioregion 800m SE	GW107659 1.8 km NW
Sydney Olympic Park	Salt Marsh Estuaries of the Sydney Basin Bioregion 1.3 km NNE	GW305646 3.3 km WSW

As there are no high priority GDEs/culturally significant sites/water supply bore within 40 m of the project site, comparisons of groundwater drawdown will solely be made to the predicted drawdown from the groundwater modelling. (GLC, 2022b; GLC 2022c). A summary of predicted drawdown values across the modelled zones is presented in **Table 8**. Modelling of drawdown was not completed for SOP, therefore there is no groundwater level assessment criteria for SOP.

Table 8 Predicted drawdown across the project

Site/Area	Scenario	Drawdown threshold (m)	Reference
Clyde	Likely case (at approximate time of handover – 2.6 years)	0.5 – 3.0	GLC, 2022b
Rosehill	Long term (operational phase)	≤ 1.0	GLC, 2022c
Parramatta	Likely flow case (no treatment) (at handover – 2 years)	0.5 – 4.0	GLC, 2022b
Westmead	Likely flow case (at handover – 2 years after commencement of construction)	0.5 – 20.0	GLC, 2022b

4.2 Groundwater Quality Monitoring

Performance Criteria for groundwater quality is detailed in the Rev D GMP. Area and aquifer-based performance-based trigger values were derived for the following areas:

- Clyde MSF
  - Clyde Zone 1 – shallow aquifer
  - Clyde Zone 5a – shallow aquifer
  - Clyde Zone 4w + 5b + 6 - shallow aquifer
  - Clyde Zone 4w + 5b + 6 - deep aquifer
- Rosehill
  - Rosehill + Clyde zone 2 – shallow aquifer
  - Rosehill + Clyde zone 2 – deep aquifer
- Clyde Dive
  - Clyde Zone 3 – shallow aquifer
  - Clyde Zone 3 – deep aquifer
- Parramatta
  - Parramatta – shallow aquifer
  - Parramatta – deep aquifer
- Westmead
  - Westmead – shallow aquifer
  - Westmead - deep aquifer

These areas are shown in **Appendix A – Figures**

. The August 2024 and October 2024 GME results have been compared to the performance criteria based on the Rev D GMP (detailed below).

4.2.1 Groundwater Quality Monitoring

Trigger values comprising NEPM GILs, PFAS NEMP 2.0, and ANZECC (2000) / ANZG (2018) 95% species protection criteria and calculated baseline trigger values have been adopted as the indicator values of the performance criteria for groundwater quality. Any changes in groundwater quality will be measured relative to these performance criteria. Results from sampling events and continuous loggers fitted with salinity sensors will be used to assess against performance criteria for potential saline intrusion, as well as reviewing field total dissolved solids (TDS) concentrations.

A reportable change in groundwater quality is be defined as:

- A parameter exceeding either the NEPM GIL, ANZECC (2000), or ANZG (2018) value over a sustained period (i.e., for at least 3 consecutive monitoring rounds), which has been recorded during baseline monitoring as non-detect or below the NEPM GIL, ANZECC (2000), or ANZG (2018) value, or
- A parameter increasing in concentration over a sustained period (i.e., for at least 3 consecutive monitoring rounds) to more than 2x the baseline trigger value, where the baseline trigger value exceeds the NEPM GIL trigger value, or
- A parameter increasing in concentration over a sustained period (i.e., for at least 3 monitoring rounds) to more than 2x the baseline trigger value, where the baseline trigger value exceeds the ANZECC (2000) or ANZG (2018) trigger value.

Once a reportable change for groundwater quality and salinity has been identified, statistical analysis (via Mann Kendall trend analysis or other means) will determine whether it is a significant change in groundwater quality. Where a significant trend in groundwater quality is identified (based on the Mann Kendall results), this will trigger desktop investigation. The objectives of the desktop investigation are to determine if:

- The contaminant concentrations are likely to present a potential immediate risk to human health or the environment which have previously not been identified (e.g. concentration significantly exceeds site concentration maximums), or
- The contaminants have potentially been introduced to groundwater directly as a result of construction activities (e.g. TRH introduced from site leaks and spills), or
- Contaminant migration is potentially occurring resulting in degradation of groundwater quality within and around sensitive receptors (including GDEs and groundwater supply bores)

Additional monitoring and management responses are to be undertaken in circumstances where any of the above-mentioned scenarios are demonstrated as likely. Monitoring frequency is to increase to monthly to further assess the potential requirements for management responses.

Desktop investigation may include but not be limited to:

- Assessment of potential sources of contamination
- Comparison to existing site data
- Investigation of recent site activities (e.g. unexpected finds, incidents)
- Assessment of contaminant migration pathways

This process is shown schematically in **Figure 2**.

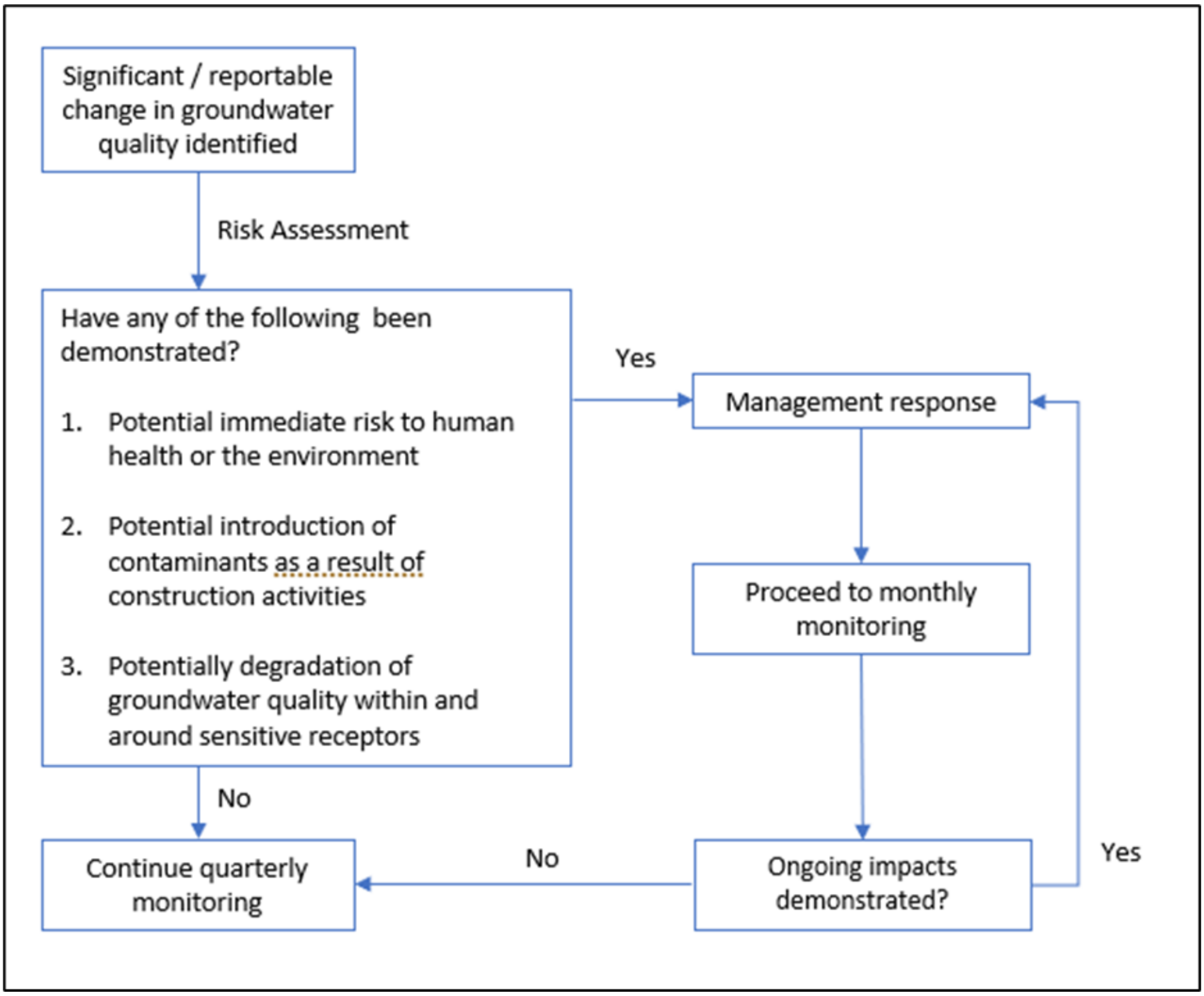


Figure 2: Trigger value exceedance flowchart

4.2.1.1 Salinity

Salinity will be assessed using TDS readings, and in monitoring wells where continuous salinity loggers are placed. A reportable change in salinity will be defined as:

- An increase of salinity over a sustained period (i.e., for at least 3, consecutive monitoring rounds) to more than 2x the baseline trigger value

Once a reportable change for salinity has been identified, statistical analysis (via Mann Kendall trend analysis or other means) will determine whether it is a significant change in groundwater quality.

Where a significant trend in groundwater salinity is identified, this will trigger further desktop investigation. The objective of the desktop investigation will be to determine if increases in salinity have the potential to impact groundwater extractive users and aquifer beneficial uses. The review will assess the historical and surrounding monitoring bore data, and modelling predictions.

Additional monitoring and management responses are to be undertaken in circumstances where the desktop review demonstrates that the above-mentioned scenario is likely. Monitoring frequency is to increase to monthly to further assess the potential requirements for management responses.

This process is shown schematically in **Figure 2**.

4.2.1.2 Acid Sulfate Soils

To assess for the activation of ASS, a Schoeller diagram will be generated. A Schoeller diagram will plot major anion, cation and pH values to identify deviations in the concentrations of base anion/cations from baseline conditions to construction works. Total alkalinity, measured in groundwater, decreasing below 30 mg/l as CaCO3 is considered to represent a reduction in the acid buffering capacity of the soil.

If the pH reduces by one unit as compared to the baseline pH range prior to excavation, this indicates that ASS may have been activated.

4.3 Rosehill Water Treatment Plant

The EPL (21676) condition L2, Point 4, stipulates the concentration limits i.e., discharge criteria for the Rosehill Permanent Water Treatment Plant to Duck River. The concentration limits can be found in **Table 9**.
A variation (Notice #1645354) was approved on 19th December 2024 to increase the Chromium (VI) and Total Nitrogen concentration limits, which are represented in **Table 9** below.

Table 9 Rosehill Permanent Water Treatment Plant, Point 4 Discharge Criteria

Parameter	Units	50th Percentile	90th Percentile	100th Percentile
Ammonia	µg/l			910
Chromium (VI)	µg/l	15		30
Cobalt	µg/l			5
Copper	µg/l			1.3
Nitrogen (total)	µg/l		1200	1800
Nitrate + nitrite (oxidised nitrogen)	µg/l			1200
Perfluoroctane Sulphonate (PFOS)	µg/l			0.13
Phosphorus (total)	µg/l			90
Zinc	µg/l			12

4.4 Westmead Water Treatment Plant

In the Project EPL (21676) condition L2, Point 3, stipulates the concentration limits i.e., discharge criteria for the Westmead Permanent Water Treatment Plant to Domain Creek. The concentration limits can be found in **Table 10**.

Table 10 Point 3 of EPL 21676 Discharge Criteria

Parameter	Units	Criteria
Ammonia	µg/l	200

Arsenic (total)	µg/l	13[1]
Cadmium	µg/l	0.2
Chromium (VI)	µg/l	1.0
Chromium (III)	µg/l	27
Cobalt	µg/l	1.4
Copper	µg/l	1.4
Electrical conductivity	µS/cm	2,200[3]
Iron	µg/l	300[2]
Lead	µg/l	3.4
Manganese	µg/l	1,900
Mercury	µg/l	0.06
Nickel	µg/l	11
Nitrate + nitrite (oxidised nitrogen)	µg/l	200
Nitrogen (total)	µg/l	1,000
Perfluorooctane sulphonate (PFOS)	µg/l	0.13
pH	pH	6.5 – 8.5
Phosphorus (total)	µg/l	25
TPH C10-C36 Fraction	µg/l	100
TPH C6-C9 Fraction	µg/l	100
Turbidity	NTU	20
Zinc	µg/l	8

1. Criteria adopted from ANZG (2018) for fresh water under 95% species protection level, and 99% species protection for bioaccumulating toxicants
2. Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Iron
3. EPL criteria specified in µS/cm using sampling method of in-field by probe. Conversion has been applied in reported results as Horiba Water Quality Meter samples as mS/cm

4.5 Parramatta Water Treatment Plant

In the Project EPL (21676) condition L2, Point 5, stipulates the discharge criteria for the Parramatta Construction Water Treatment Plant to Parramatta River downstream of the Charles Street Weir. The concentration limits can be found in **Table 11**.

Table 11 Point 5 of EPL 21676 Discharge Criteria

Point	Parameter	Units	Criteria
5	Ammonia	µg/l	790
5	Arsenic	µg/l	13
5	Cadmium	µg/l	0.7
5	Chromium (VI)	µg/l	4.4
5	Chromium (III)	µg/l	4.4
5	Cobalt	µg/l	1
5	Copper	µg/l	1.3
5	Iron	µg/l	300

5	Lead	µg/l	1
5	Manganese	µg/l	1,900
5	Mercury	µg/l	0.4
5	Nickel	µg/l	35
5	Nitrate + nitrite (oxidised nitrogen)	µg/l	300
5	Nitrogen (total)	µg/l	1,200
5	Oil and grease	Visible	None visible
5	Perfluorooctane sulphonate (PFOS)	µg/l	0.0091
5	Perfluorooctanoic acid (PFOA)	µg/l	0.062
5	pH	pH	6.5 – 8.5
5	Phosphorus (total)	µg/l	90
5	TPH C10-C36 Fraction	µg/l	100
5	TPH C6-C9 Fraction	µg/l	100
5	Turbidity	NTU	10
5	Zinc	µg/l	12

5 RESULTS

5.1 Registered Groundwater Bores

A review of the registered groundwater bores in the 3 km buffer of the Project alignment was undertaken during the July 2022 baseline factual monitoring report, which detailed the existing registered groundwater bores.

5.2 GWMW Condition Assessment

The condition assessment of the GWMWs across the entire groundwater monitoring network (refer to **Table 3**) was carried out during the August 2024 and October 2024 GMEs. The assessment was unable to locate several GWMWs as detailed in **Table 12**. GWMWs listed below were not sampled, and were presumed to be destroyed, were inaccessible due to construction activities on site, or were inaccessible due to other access constraints. GWMWs that were assessed as being suitable for sampling and/or gauging are detailed in **Table 3.**

Replacement GWMWs have been identified throughout each groundwater monitoring event, to ensure that the monitoring program collects the necessary groundwater monitoring data required to gain a robust characterisation of the works.

Table 12 GWMW Condition Assessment

GWMW ID	Details
August 2024 monitoring event	
CZ1_MW500_w	Likely destroyed - unable to access due to construction activities
CZ1_MW501_w	Unable to access due to construction activities
CZ1_MW502_w	Likely destroyed - unable to access due to construction activities
SMW_ENV149_w	Likely destroyed - unable to access due to construction activities
SMW_ENV148_w	Unable to access due to construction activities
SMW_ENV231	Covered by fill/unable to locate due to changes on site
SMW_ENV232A	Decommissioned (concrete-filled) – unable to use
SMW_ENV229_w	Covered by fill/unable to locate due to changes on site
SMW_ENV227_w	Likely destroyed - unable to access due to construction activities
GALC-MW12	Destroyed – unable to access due to construction activities
CZ5_MW16	Destroyed – unable to access due to construction activities
SMW_ENV226_w	Decommissioned – unable to use
SMW_ENV146	Inspected and in unusable condition (on road)
GALC-MW32A	Unable to locate due to changes on site
PM_BH57	Likely destroyed - unable to locate due to archaeological digging onsite
PM_BH21	Likely destroyed - unable to locate due to archaeological digging onsite
CZ1_BH71	Unable to locate due to site car park
SMW_WTP_BH41	Likely destroyed – located in an area comprising a new piling pad

GWMW ID	Details
SMW_ENV250	Destroyed – unable to use
SMW_ENV044	Marked by surveyor to be on haul road, unable to locate
October 2024 monitoring event	
CZ1_MW500_w	Likely destroyed - unable to access due to construction activities
CZ1_MW501_w	Likely destroyed - unable to access due to construction activities
CZ1_MW502_w	Likely destroyed - unable to access due to construction activities
SMW_ENV149_w	Likely destroyed - unable to access due to construction activities
SMW_ENV148_w	Likely destroyed - unable to access due to construction activities
SMW_ENV231	Covered by fill/unable to locate due to changes on site
SMW_ENV232A	Decommissioned (concrete-filled) – unable to use
SMW_ENV229_w	Covered by fill/unable to locate due to changes on site
SMW_ENV227_w	Likely destroyed - unable to access due to construction activities
GALC-MW12	Destroyed – unable to access due to construction activities
CZ5_MW16	Destroyed – unable to access due to construction activities
SMW_ENV226_w	Decommissioned – unable to use
SMW_ENV146	Inspected and in unusable condition (on road)
GALC-MW32A	Unable to locate due to changes on site
PM_BH57	Likely destroyed - unable to locate due to archaeological digging onsite
PM_BH21	Likely destroyed - unable to locate due to archaeological digging onsite
CZ1_BH71	Unable to locate due to site car park
SMW_WTP_BH41	Likely destroyed – located in an area comprising a new piling pad
SMW_ENV250	Destroyed – unable to use
SMW_ENV044	Marked by surveyor to be on haul road, unable to locate
GALC-MW18	Decommissioned by GLC – unable to use
CZ5a_MW102	Damaged at the time – unable to use
CZ1_D35_MW01	Inaccessible – in an asbestos exclusion zone at the time

5.3 Groundwater Levels

5.3.1 Manual Groundwater Level Monitoring

Water levels were manually measured at GWMWs during the August 2024 and October 2024 GMEs. The results are presented in **Table 13**. GWMWs that were for contamination purposes were not surveyed, however the additional groundwater level information adds a more robust conceptualisation of groundwater levels within the scheme. These works were undertaken by suitably qualified field staff and reviewed by a suitably qualified hydrogeologist.

Table 13 Manual Groundwater Level Monitoring

GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
CZ1_BH13	6/08/2024	Not surveyed	9.7	3.5	Not surveyed
CZ4e_MW02_w	7/08/2024	Not surveyed	6.0	2.2	Not surveyed
CZ4e_MW03_w	7/08/2024	Not surveyed	4.2	1.4	Not surveyed
CZ5_MW09	6/08/2024	Not surveyed	5.0	0.8	Not surveyed
GALC-MW16_s	8/08/2024	10.5	11.0	10.4	0.1
GALC-MW16_w	8/08/2024	10.5	19.1	14.1	-3.6
GALC-MW17	8/08/2024	13.9	22.0	17.7	-3.9
GALC-MW18*	8/08/2024	7.8	6.1	1.8	6.0
GALC-MW26A	12/08/2024	9.6	9.5	4.6	5.0
GALC-MW26	12/08/2024	9.2	29.4	10.4	-0.9
GALC-MW31	12/08/2024	10.2	26.5	9.6	0.6
GALC-MW32*	12/08/2024	11.6	20.2	8.2	3.4
GALC-MW33*	12/08/2024	11.4	32.5	8.9	2.5
GALC-MW38*	8/08/2024	33.0	36.7	17.6	15.3
GALC-MW47	8/08/2024	36.9	15.7	13.9	23.0
GALC-MW54	9/08/2024	17.4	5.0	2.1	15.4
PM_BH14	12/08/2024	10.3	6.0	4.9	5.4
PM_BH15	12/08/2024	Not surveyed	10.0	5.0	Not surveyed
SMW_ADD_BH02_w	19/08/2024	13.5	30.0	28.0	-14.6
SMW_BH002_w	12/08/2024	9.0	34.0	10.5	-1.5
SMW_BH004_s	9/08/2024	8.7	11.4	4.7	4.1
SMW_BH004_w	9/08/2024	8.6	23.8	9.1	-0.5
SMW_BH008_w	8/08/2024	21.1	17.8	14.2	6.9
SMW_BH010_w	7/08/2024	4.4	27.4	12.2	-7.8
SMW_BH057_s	19/08/2024	3.7	4.4	2.0	1.7
SMW_BH057_w	19/08/2024	3.6	27.1	13.4	-9.8
SMW_ENV009_w	19/08/2024	4.3	7.1	2.1	2.2
SMW_ENV010_w	19/08/2024	4.3	7.2	2.4	1.9
SMW_ENV039_w	7/08/2024	6.4	10.5	5.6	0.8
SMW_ENV145_w	7/08/2024	4.6	14.6	11.2	-6.6
SMW_ENV226_s	12/08/2024	5.6	4.6	4.0	1.7
SMW_WTP_BH02_w	9/08/2024	35.5	21.0	6.5	28.9
SMW_WTP_BH03A_w	9/08/2024	36.1	22.1	16.9	19.2
SMW_WTP_BH13_w	7/08/2024	5.1	6.7	1.0	4.1
SMW_WTP_BH22_w	9/08/2024	2.7	25.0	16.3	-13.6
SMW_WTP_BH23_w	9/08/2024	10.1	30.3	25.8	-15.7

GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
SMW_WTP_BH25_s	6/08/2024	5.6	5.7	2.4	3.2
SMW_WTP_BH25_w	6/08/2024	5.4	10.1	6.6	-1.2
CZ5a_MW101	2/09/2024	Not surveyed	7.3	Dry	Not surveyed
CZ5a_MW102	2/09/2024	Not surveyed	7.67	3.73	Not surveyed
CZ5a_MW103	2/09/2024	Not surveyed	8.92	3.53	Not surveyed
CZ1_BH13	23/10/2024	3.4	9.7	3.1	0.3
CZ1_D35_MW02	23/10/2024	Not surveyed	6.7	3.2	Not surveyed
CZ4e_MW02	25/10/2024	Not surveyed	6.0	1.8	Not surveyed
CZ4e_MW03	25/10/2024	Not surveyed	4.3	1.4	Not surveyed
CZ5_MW09	23/10/2024	Not surveyed	5.0	0.8	Not surveyed
CZ5a_MW101	24/10/2024	Not surveyed	7.0	6.2	Not surveyed
CZ5a_MW103	24/10/2024	Not surveyed	8.8	2.9	Not surveyed
CZ5a_MW104	24/10/2024	Not surveyed	6.9	4.0	Not surveyed
CZ5a_MW105	24/10/2024	Not surveyed	11.0	6.5	Not surveyed
GALC-MW16_s	22/10/2024	10.5	11.2	10.8	-0.4
GALC-MW16_w	22/10/2024	10.5	19.6	13.5	-3.0
GALC-MW17	17/10/2024	13.9	21.9	17.7	-3.8
GALC-MW26	21/10/2024	9.5	30.2	17.2	-7.7
GALC-MW26A	21/10/2024	9.7	8.6	4.8	4.7
GALC-MW31	21/10/2024	10.2	33.0	11.4	-1.2
GALC-MW32*	21/10/2024	11.6	29.1	8.9	2.7
GALC-MW33*	21/10/2024	11.4	30.0	9.8	1.5
GALC-MW38*	18/10/2024	33.0	41.0	18.6	14.4
GALC-MW47	18/10/2024	36.9	17.1	13.9	23.0
GALC-MW54	17/10/2024	17.4	5.0	2.1	15.3
PM_BH14	21/10/2024	10.3	6.0	5.3	5.0
PM_BH15	21/10/2024	Not surveyed	10.1	5.4	Not surveyed
SMW_ADD_BH02_w	17/10/2024	13.5	30.6	27.7	-14.2
SMW_BH002_w	21/10/2024	9.0	34.0	11.7	-2.7
SMW_BH004_s	18/10/2024	8.7	11.4	5.1	3.7
SMW_BH004_w	18/10/2024	8.6	23.6	9.4	-0.8
SMW_BH008_w	18/10/2024	21.1	18.0	14.2	6.9
SMW_BH010_w	23/10/2024	4.4	27.6	10.4	-6.0
SMW_BH057_s	17/10/2024	3.7	4.6	2.2	1.6
SMW_BH057_w	17/10/2024	3.6	27.7	13.4	-9.8
SMW_ENV009_w	21/10/2024	4.3	7.1	2.2	2.1
SMW_ENV010_w	21/10/2024	4.3	7.1	2.5	1.8

GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
SMW_ENV039_w	23/10/2024	6.4	10.3	6.2	0.2
SMW_ENV042_w	25/10/2024	4.4	10.3	10.1	-5.6
SMW_ENV145_w	23/10/2024	4.6	14.6	9.9	-5.2
SMW_ENV226_s	22/10/2024	5.6	4.6	4.1	1.6
SMW_WTP_BH02_w	18/10/2024	35.5	21.1	6.6	28.9
SMW_WTP_BH03A_w	18/10/2024	36.1	22.1	18.2	17.9
SMW_WTP_BH13_w	22/10/2024	5.1	7.3	1.9	3.2
SMW_WTP_BH22_w	18/10/2024	2.7	25.4	19.7	-16.9
SMW_WTP_BH23_w	18/10/2024	10.1	30.5	23.6	-13.6
SMW_WTP_BH25_s	22/10/2024	5.6	5.7	2.4	3.1
SMW_WTP_BH25_w	22/10/2024	5.4	10.3	6.9	-1.6

* TOC RL may no longer be representative due to changes in surrounding surface level/the PVC casing

5.3.2 Automatic Groundwater Level Trends/Performance Criteria Assessment

Selected GWMWs have been equipped with water level probes. These GWMWs have provided continuous groundwater level measurements and have been accessed quarterly by Epic. Hydrographs were produced by a suitably qualified hydrogeologist. Hydrographs showing the continuous groundwater level monitoring for the GWMWs are presented in **Appendix C –** Hydrographs. Salinity trends for the GWMWs, detailed in **Table 4** are presented in **Appendix C –** Hydrographs.

Measured water levels at selected monitoring locations are presented in **Table 14**.

Table 14 Groundwater Drawdown at Select Locations

Site	GWMW ID	Latest Monitoring Round	Pre-construction average SWL (mAHD)	Historical SWL variance (mAHD)	Monitoring period latest SWL (mAHD)	Monitored drawdown (m)	Drawdown threshold (m)[3]
Clyde MSF	CZ1_BH13_w	October 2024	0.5	1.5 to 0.5	0.3	0.2	N/A[2]
Clyde MSF	SMW_ENV039_w	October 2024	2.0	2.0	0.2	1.8	2.0
Clyde MSF	CZ4e_MW02[4]	October 2024	3.1	3.1	4.1	-1.0	<1.0
Rosehill	SMW_WTP_BH25_w	October 2024	3.0	3.0	-1.6	4.6	**<1.0**
Rosehill	SMW_BH010	October 2024	3.0	3.3 to 2.4	-6.0	9.0	**<1.0**
Rosehill	SMW_ENV145	October 2024	3.5	3.8 to 3.1	-5.2	8.7	**<1.0**
Clyde Dive	SMW_BH057_s	October 2024	2.2	3.3 to 1.7	1.6	0.7	2.5
Clyde Dive	SMW_BH057_w	October 2024	2.0	2.3 to 1.8	-9.8	11.8	**2.5**
Clyde Dive	GALC_MW16_w[1]	October 2024	1.7	2.8 to 1.5	-3.0	4.7	**2.5**

Site	GWMW ID	Latest Monitoring Round	Pre-construction average SWL (mAHD)	Historical SWL variance (mAHD)	Monitoring period latest SWL (mAHD)	Monitored drawdown (m)	Drawdown threshold (m)[3]
Clyde Dive	SMW_ENV009_w	October 2024	2.4	3.2 to 2.2	2.2	0.3	1.5
PTA	SMW_BH002	October 2024	-1.5	0 to -2.2	-2.8	1.3	2.5
PTA	SMW_BH004_s	October 2024	4.0	4.7 to 3.4	3.7	0.4	1.5
PTA	SMW_BH004_w	October 2024	-0.5	0.2 to -1.4	-0.8	0.3	1.5
PTA	PM_BH14	October 2024	6.0	6.5 to 5.5	5.0	1.0	2.5
WMD	SMW_BH008_w	October 2024	19.0	19.9 to 18.6	6.9	12.1	18.0
WMD	SMW_WTP_BH03A	October 2024	22.6	23.3 to 21.7	17.9	4.7	18.0
WMD	SMW_WTP_BH02	October 2024	29.2	29.4 to 29.0	28.9	0.3	15.0
WMD	GALC_MW54	October 2024	15.3	15.3 to 15.2	15.2	0.1	N/A[2]

[1] This well is part of the geotechnical monitoring located across the project, operated by GLC. It is being used as a replacement well for SMW_ADD_BH02_w
[2] Groundwater modelling did not calculate drawdown located at these monitoring bores, therefore pre-construction SWLs are not considered relevant
[3] drawdown threshold as determined from groundwater modelling reports (GLC, 2022b; GLC, 2022c), values in **bold** indicate a reportable change (**Section 5.3.3**)
[4] This is a replacement well for SMW_ENV042 as detailed in the previous six-monthly report

Salinity and conductivity trends are consistent across the monitoring period.

5.3.3 Performance Criteria Assessment

Performance criteria assessment was undertaken by a suitably qualified hydrogeologist.

Compared to the AIP criteria, there are no reportable changes in groundwater level. These exceedances are not reportable to the AIP criteria due to GWMWs used for assessing drawdown being greater than 40 m away from the following:

- high priority groundwater dependent ecosystem
- high priority culturally significant site listed in the schedule of the relevant water sharing plan
- a cumulative maximum of 2 m decline in water level or pore pressure at any water supply bore.

Drawdown was assessed for each borehole with automatic loggers installed. Comparison with the groundwater modelling drawdown predictions (after two (2) years - high case model) identified reportable changes, detailed in **Table 15**.

Table 15 Reportable change in groundwater level

Monitoring zone	GWMW ID	Aquifer (modelling report)	Typical pre-construction GWL (mAHD)	Construction GWL – October 2024 (mAHD)	Drawdown (m)	Drawdown threshold (m), as per modelling report
Clyde MSF	SMW_WTP_BH25_w	Not reported	3	-1.5	4.5	<1
Rosehill	SMW_BH010_w	Not reported	3	-6.1	9.1	<1
Rosehill	SMW_ENV145_w	Not reported	3.5	-5.2	8.7	<1
Clyde Dive	SMW_BH057_w	Ashfield shale	2	-9.8	11.8	2.5
Clyde Dive	GALC_MW16_w	Ashfield shale	2	-3.6	5.3	2.5

Recommended actions from reportable changes in groundwater level are detailed in **Table 16**. As the reportable changes are solely due to differences identified based on groundwater modelling, and not based on AIP criteria, no management actions have been deemed necessary.

For SMW_ENV042_w, it was recommended to drill a replacement well. However, due to access arrangements and site shutdown works, this was not possible. CZ4e_MW02 (response zone 2.6 – 6.0 mbTOC) has been used as a replacement GWMW. As detailed in **Table 15**, the drawdown encountered at this GWMW did not meet the drawdown threshold.

Table 16 Recommended actions from the reportable changes in groundwater level

Location	GWMW	Recommended action
Rosehill	SMW_WTP_BH25_w	• Observed drawdown does not indicate potential for unacceptable impacts to the environment or human health • No management action required • Confirm GLC’s groundwater modelling consultant that <1 m drawdown is correct for adoption as trigger value for this GWMW • Continue monitoring as part of the quarterly groundwater monitoring program
	SMW_ENV145_w	• Observed drawdown does not indicate potential for unacceptable impacts to the environment or human health • No management action required • Confirm with GLC’s groundwater modelling consultant that <1 m drawdown is correct for adoption as trigger value for this GWMW • Continue monitoring as part of the quarterly groundwater monitoring program
	SMW_BH010_w	• Observed drawdown does not indicate potential for unacceptable impacts to the environment or human health • No management action required • Confirm with GLC’s groundwater modelling consultant <1 m drawdown is correct for adoption as trigger value for this GWMW • Continue monitoring as part of the quarterly groundwater monitoring program
Clyde Dive	SMW_BH057_w	• Observed drawdown does not indicate potential for unacceptable impacts to the environment or human health

Location	GWMW	Recommended action
		• No management action required • Confirm with GLC's groundwater modelling consultant that modelled drawdown is correct for adoption as trigger value for this GWMW • Continue monitoring as part of the quarterly groundwater monitoring program
	GALC-MW16 (replacement for SMW_ADD_BH02_w)	• Observed drawdown does not indicate potential for unacceptable impacts to the environment or human health • No management action required • Confirm with GLC's groundwater modelling consultant that modelled drawdown is correct for adoption as trigger value for this GWMW • Continue monitoring as part of the geotechnical monitoring program

5.4 Groundwater Inflow Assessment

5.4.1 Methodology

Estimations of groundwater inflow into the excavations (Rosehill, Clyde Dive, Parramatta station box, Westmead station box) has been completed to assess groundwater take from the Syndey Basin Central Groundwater Source. Determining groundwater inflow through corresponding the influent rates to the respective WTPs is not appropriate due to the influent rate being a combination of rainfall runoff, addition of water for grout mixture, recycling of water from TBM operations, and groundwater inflow.

Therefore, the observed changes in groundwater level have been used to estimate the amount of groundwater inflow entering each excavation. The time variant Cooper-Jacob equation (Kruseman & de Ridder, 1994), based on the Theis equation, has been used. This equation relates the monitored change in groundwater level (drawdown) to groundwater inflow. For Rosehill, Clyde Dive, and Westmead, the Cooper-Jacob equation for unconfined aquifers has been used. For Parramatta, the Cooper-Jacob equation for confined aquifers has been used. This is due to the pre-construction groundwater level data at Parramatta indicating that groundwater levels within the shallow alluvial aquifer are hydraulically distinct from the groundwater levels in the bedrock aquifer (Ashfield Shale, Hawkesbury Sandstone). The bedrock aquifer has been modelled as the excavation (nozzles/tunnels/station box) is principally within the bedrock aquifer.

The Cooper-Jacob equation for unconfined aquifers is as follows:

$$Q = \frac{4 \times \pi \times T \times s_c}{2.3 \times \log\left(\frac{2.25 \times T \times t}{r^2 \times S}\right)}$$

Where:

Q	[m³/d]	is the estimated inflow rate into the excavation
T	[m²/d]	is the transmissivity of the unconfined aquifer
s_c	[m]	is the corrected drawdown observed at the monitoring well
t	[d]	is the days since the start of groundwater interaction
S	[-]	is the storage coefficient of the aquifer

r [m] is the radial distance of the monitoring well from the excavation

Transmissivity is the product of the thickness of the aquifer (determined from the base of excavation to the water level at time t) and the hydraulic conductivity of the aquifer. A weighted arithmetic mean was used to provide a representative hydraulic conductivity value.

Storage coefficient of the aquifer is determined as:

$$S = S_y + (S_s \times Thickness\ of\ aquifer)$$

Where:

S_y [-] is the specific yield of the aquifer

S_s [1/m] is the specific storativity of the aquifer

The corrected drawdown is calculated as follows:

$$s_c = \left(1 - \frac{s_a}{2 \times thickness\ of\ aquifer}\right)$$

Where

s_a [m] is the observed drawdown

The following condition is required to be met for the Cooper-Jacob equation to be valid.

$$u = \frac{r^2 \times S}{4 \times T \times t} < 0.01$$

The Cooper-Jacob equation for unconfined aquifers is as follows:

$$Q = \frac{4 \times \pi \times T \times s_a}{2.3 \times \log\left(\frac{2.25 \times T \times t}{r^2 \times S}\right)}$$

With the following adjustments:

- Transmissivity is defined as the thickness of the aquifer (base of excavation to the top of the bedrock aquifer)
- Storage coefficient of the aquifer is the product of the specific storability and the thickness of the bedrock aquifer

The following assumptions apply to these equations:

- The aquifer has infinite areal extent
- The aquifer is homogeneous and isotropic
- The water removed from storage is discharged instantaneously with decline of groundwater level
- The water collected in the excavation is collected and sent to the WTP immediately, i.e. the storage in the excavation can be ignored
- The time since the start of groundwater interaction has been determined from the groundwater quality trigger values report (GLC, 2024), as this is the time from when significant interaction with groundwater started for each area

From the monitoring data, a monthly drawdown has been calculated, enabling for a monthly inflow estimation to each excavation. For each excavation, multiple groundwater monitoring wells have been used in the estimations, to allow for a more refined inflow estimate.

5.4.2 Rosehill

The ground model and hydrogeological parameters for Rosehill is detailed in **Table 17**. The following groundwater monitoring wells were used/not used in the inflow estimation:

- SMW_WTP_BH25_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well
- SMW_BH010_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well
- CZ4e_MW02_w: No – drawdown is not observed at this groundwater monitoring well. This is likely due to being screened within the shallow aquifer
- SMW_ENV145 _w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well

Table 17 Ground model and hydrogeological parameters used for Rosehill

Unit	From[a] (m)	To[a] (m)	Thickness[a] (m)	Hydraulic conductivity[a] (m/d)	Specific Storativity[a] (1/m)	Specific Yield[a] (-)
Alluvium	5.0	-10.0	15.0	0.1	-	-
Ashfield Shale	-10.0	-22.0[a,b]	12.0	0.02	5.00×10^{-6}	0.0005
Representative hydraulic conductivity				0.03		

a = parameters taken from the HIR GLC (2022b)
b = base of aquifer defined as the base of excavation, defined in the HIR GLC (2022c)

Appendix J – groundwater inflow estimates shows the corresponding groundwater inflow for each well used in the estimate, with **Table 18** summarising the estimate inflows of the monitoring period.

Table 18 Groundwater inflow estimates into Rosehill over the reporting period

Groundwater monitoring well	Distance to excavation (m)	Average groundwater inflow estimate (Jun 24 to Oct 24) (m^3/d)	Average groundwater inflow estimate (m^3/d)	Maximum allowable groundwater seepage (m^3/d)[a]	Total groundwater inflow estimate over 6 months (m^3)
SMW_WTP_BH25_w	113	10.4	17.1	45.0	3,184.7
SMW_BH010_w	160	20.4			
SMWENV145_w	160	20.6			

a = Project construction groundwater monitoring program (GLC, 2024)

5.4.3 Clyde Dive

The ground model and hydrogeological parameters for Clyde Dive is detailed in **Table 19**. The following groundwater monitoring wells were used/not used in the inflow estimation:

- SMW_ENV039_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well
- GALC_MW16_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well
- SMW_BH057_w: No – groundwater drawdown is observed at this groundwater monitoring well; however calculations show that the Cooper-Jacob equation is not valid for this groundwater monitoring well
- SMW_BH057_s: No – groundwater drawdown is not observed at the groundwater monitoring well. This is likely due to being screened within the shallow aquifer
- SMW_ENV009_w: No – groundwater drawdown is not observed at the groundwater monitoring well. This is likely due to being screened within the shallow aquifer

Table 19 Ground model and hydrogeological parameters used for Clyde Dive

Unit	From[a] (m)	To[a] (m)	Thickness[a] (m)	Hydraulic conductivity[a] (m/d)	Specific Storativity[a] (1/m)	Specific Yield[a] (-)
Residual	14	8	6	0.1	-	-
Ashfield Shale	8	-6	14	0.01	5.00×10^{-6}	0.005
Mittagong Formation	-6	-10	4	0.034	-	-
Hawkesbury Sandstone	-10	-12[b]	2	0.034	-	-
Representative hydraulic conductivity				0.04		

a = parameters taken from the HIR GLC (2022b)
b = base of aquifer defined as the base of excavation, defined in the HIR GLC (2022b)

Appendix J – groundwater inflow estimates shows the corresponding groundwater inflow for each well used in the estimate, with **Table 20** summarising the estimate inflows of the monitoring period.

Table 20 Groundwater inflow estimates into Clyde Dive over the reporting period

Groundwater monitoring well	Distance to excavation (m)	Average groundwater inflow estimate (Jun 24 to Oct 24) (m^3/d)	Average groundwater inflow estimate (m^3/d)	Maximum allowable groundwater seepage (m^3/d)	Total groundwater inflow estimate over 6 months (m^3)
SMW_ENV039_w	30.0	1.1	1.3	1.7	244.8
GALC_MW16_w		1.0	1.6		

a = Project construction groundwater monitoring program (GLC, 2024). Determined from **operational** criteria of 5.0 $mL/m^2/hr$, equivalent to 0.00012 $m^3/m^2/d$. Surface area of Clyde Dive determined from HIR (GLC, 2022b); 210 m length, and 16 m width, 26 m depth, meaning a combined surface area of 14,280 m^2 [Wall 1 (210 m x 26 m) + Wall 2 (210 m x

26 m) + basement (210 m x 16 m)]. Therefore, a maximum seepage rate of 1.7 m^3/d. This seepage rate is for operational design and so is not appropriate for construction, however estimated inflow is currently below operational criteria.

5.4.4 Parramatta

The ground model and hydrogeological parameters for Parramatta is detailed in **Table 21**. The following groundwater monitoring wells were used/not used in the inflow estimation:

- SMW_BH002_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well
- SMW_BH004_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well

Table 21 Ground model and hydrogeological parameters used for Parramatta

Unit	From[a] (m)	To[a] (m)	Thickness[a] (m)	Hydraulic conductivity[a] (m/d)	Specific Storativity[a] (1/m)
Alluvium	10	-2	12	0.1	-
Ashfield Shale	-2	-7	5	0.076	5.00×10^{-6}
Hawkesbury Sandstone	-7	-20[b]	13	0.22	-
Representative hydraulic conductivity				0.18	

a = parameters taken from the HIR GLC (2022b)
b = base of aquifer defined as the base of excavation, defined in the HIR GLC (2022b)

Appendix J – groundwater inflow estimates shows the corresponding groundwater inflow for each well used in the estimate, with **Table 22** summarising the estimate inflows of the monitoring period.

Table 22 Groundwater inflow estimates into Parramatta over the reporting period

Groundwater monitoring well	Distance to excavation (m)	Average groundwater inflow estimate (Jun 24 to Oct 24) (m^3/d)	Average groundwater inflow estimate (m^3/d)	Maximum allowable groundwater seepage (m^3/d)[a]	Total groundwater inflow estimate over 6 months (m^3)
SMW_BH002_w 30.0	0.9	1.0		134.0	194.3
SMW_BH004_w	160.0	1.2			

a = Project construction groundwater monitoring program (GLC, 2024)

5.4.5 Westmead

The ground model and hydrogeological parameters for Westmead is detailed in **Table 23**. The following groundwater monitoring wells were used/not used in the inflow estimation:

- SMW_WTP_BH03A_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well

- SMW_WTP_BH02_w: No – drawdown is not observed at this groundwater monitoring well. This is likely due to being topographically upgradient from the excavation and therefore will not contribute to groundwater inflow into the excavation
- SMW_BH008_w: Yes – groundwater drawdown observed at the groundwater monitoring well and calculations show that the Cooper-Jacob equation is valid for this groundwater monitoring well

Table 23 Ground model and hydrogeological parameters used for Westmead station

Unit	From[a] (m)	To[a] (m)	Thickness[a] (m)	Hydraulic conductivity[a] (m/d)	Specific Storativity[a] (1/m)	Specific Yield[a] (-)
Residual	35.0	25.0	10.0	0.1	-	-
Ashfield Shale	25.0	-6.0[a,b]	31.0	0.01	5.00×10^{-6}	0.005
Representative hydraulic conductivity				0.03		

a = parameters taken from the HIR GLC (2022b)
b = base of aquifer defined as the base of excavation, defined in the HIR GLC (2022b)

Appendix J – groundwater inflow estimates shows the corresponding groundwater inflow for each well used in the estimate, with **Table 24** summarising the estimate inflows of the monitoring period.

Table 24 Groundwater inflow estimates into Westmead station over the reporting period

Groundwater monitoring well	Distance to excavation (m)	Average groundwater inflow estimate (Jun 24 to Oct 24) (m^3/d)	Average groundwater inflow estimate (m^3/d)	Maximum allowable groundwater seepage (m^3/d)[a]	Total groundwater inflow estimate over 6 months (m^3)
SMW_WTP_BH03A_w	87.0	12.4	14.4	100.0	2,683.6
SMW_BH008_w	180.0	16.4			

a = Project construction groundwater monitoring program (GLC, 2024)

5.5 Groundwater Quality

A summary of groundwater exceedances against the generic water quality criteria is provided in **Appendix B – Tables**. In general, the following contaminants were found to exceed generic water quality criteria, which are likely to be due to historical contamination issues as indicated by historic data:

- Metals
  - Copper and zinc exceedances were identified in all monitoring sites
  - Nickel exceedances were identified in Clyde MSF and Rosehill
- Nutrients
  - Ammonia exceedances were identified in Clyde MSF, Clyde Dive, and Westmead
  - Nitrate exceedances were identified in Clyde MSF, Rosehill, and Parramatta
  - Nitrogen exceedances were identified in all monitoring sites

- Chlorobenzene
  - Chlorobenzene exceedances were only identified in Clyde MSF (SMW_WTP_BH25_s) for both the August and October GMEs
- PFOS
  - PFOS exceedances against the 99% species protection were identified in Clyde MSF, Clyde Dive, and Parramatta
  - PFOS exceedances against the 95% species protection were identified in Parramatta (August GME only, PM_BH14_w)

5.5.1 Performance Criteria Assessment (Water Quality)

Reportable changes in the performance criteria for water quality has been assessed for the August 2024 and October 2024 GME, comparted to the performance criteria in the Rev D GMP.

This assessment has been undertaken by a suitably qualified hydrogeologist.

5.5.1.1 August 2024 GME

The reportable changes in groundwater quality are detailed in **Table 25**. For these parameters, a Mann-Kendall analysis was undertaken, with none of the trends considered statistically significant. These Mann Kendall plots are shown in **Appendix G – Mann Kendall trend analysis**. Therefore, no further review is required and these GWMWs will be monitored at a quarterly frequency.

Table 25 August 2024 GME reportable changes in groundwater quality

Zone	GWMW	Analyte	Guideline	Trigger	Unit	Jan 24	May/Jun 24	August 24
Clyde MSF	SMW_WTP_BH25_s	Ammonia	a	1.9	mg/L	**16.2**	**15.4**	**5.84**
		Total Nitrogen	a	2.32	mg/L	**16.2**	**17.8**	**12.6**
		Chlorobenzene	b	55	µg/L	**826**	**686**	**296**
	CZ1_BH13	PFOS	c	0.13	µg/L	**0.41**	**0.42**	**0.56**
Parramatta	SMW_BH004_s	Copper	d	2	µg/L	**49**	**22**	**24**
		Nitrate	e	2.4	mg/L	**12.5**	**11.1**	**10.1**

Bold indicates an exceedance of the trigger value
a = Clyde Zone 1 Shallow Aquifer Trigger Values
b = ANZG Marine Water Toxicant DGVs LOSP 95%
c = PFAS NEMP 2020 Interim Freshwater 95%
d = Parramatta Shallow Aquifer Trigger Values
e = NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

The following potential increasing trends, provided in **Table 26**, were identified in the August 2024 GME, and will be checked in the successive quarterly monitoring rounds.

Table 26 August 2024 potential increasing trends

Zone	GWMW	Analyte	Guideline	Trigger	Unit	May/Jun 24	Aug 24
Clyde MSF	SMW_WTP_BH25_w	Total Nitrogen	a	2.32	mg/L	**5.3**	**5.6**
	CZ5_MW16	Ammonia	b	3.475	mg/L	**8.2**	**7.31**
Rosehill	SMW_ENV145	Copper	c	288	µg/L	**604**	**1,630**
	CZ4e_MW02_w	Reactive Phosphorus	d	0.005	mg/L	**0.01**	**0.02**

Zone	GWMW	Analyte	Guideline	Trigger	Unit	May/Jun 24	Aug 24
Clyde Dive	SMW_ENV009_w	Total Phosphorus	e	0.13	mg/L	**0.44**	**0.42**
	GALC_MW16_w	Total Phosphorus	f	0.05	mg/L	**0.35**	**2.28**
Parramatta	PM_BH14	Copper	g	2	µg/L	**16**	**74**
		PFOS	h	0.13	µg/L	**0.25**	**0.22**
Westmead	SMW_WTP_BH03A_w	Total Phosphorus	i	0.19	mg/L	**0.39**	**0.47**

Bold indicates an exceedance of the trigger value
a = Clyde Zone 1 Shallow Aquifer Trigger Values
b = Clyde Zone 5a Shallow Aquifer Trigger Values
c = Rosehill Deep Aquifer Trigger Values
d = ANZECC 2000 SE Aust Triggers - Estuaries
e = Clyde Zone 3 Shallow Aquifer Trigger Values
f = Clyde Zone 3 Deep Aquifer Trigger Values
g = Parramatta Shallow Aquifer Trigger Values
h = PFAS NEMP 2020 Interim Marine 95%
i = Westmead Deep Aquifer Trigger Values

The reportable changes in groundwater quality from the May/June 2024 GME were still identified as reportable changes in the August 2024 GME, with the exception of SMW_WTP_BH02, which is no longer a reportable change, as detailed in **Table 27**.

Table 27 May/June 2024 reportable changes no longer reportable changes compared to August 2024 GME

Zone	GWMW	Analyte	Guideline	Trigger	Unit	Jan 24	May/ Jun 24	Aug 24	Assessment
Westmead	SMW_WTP-BH02	Reactive Phosphorus	a	0.02	mg/L	**0.16**	**0.11**	<0.01	No longer a reportable change

Bold indicates an exceedance of the trigger value
a = ANZECC 2000 SE Aust Triggers – Lowland river

The May/June 2024 GME identified potential increases which have been checked during the August 2024 GME and are presented in **Table 28**.

Table 28 May/June 2024 GME rising trends compared to August 2024 GME

Monitoring zone	GWMW ID	Analyte	Guideline	Trigger	Unit	Jan 24	May/June 2024	August 2024	comment
Clyde MSF	SMW_WTP_BH25_w	Ammonia	a	1.9	mg/L	**1.36**	**5.4**	0.86	No longer rising trend
		Total Nitrogen	a	2.32	mg/L	4.6	**5.3**	**5.6**	Remains a rising trend **(Table 26)**
		Arsenic	a	5.95	µg/L	4	**13**	9	No longer rising trend
	CZ5_MW16	Ammonia	b	3.475	mg/L	1.38	**8.2**	**7.31**	Remains a rising trend **(Table 26)**
	CZ1_BH13	PFOS	g	0.13	µg/L	**0.41**	**0.42**	**0.56**	Reportable change **(Table 25)**
Rosehill	SMW_ENV145	Copper	c	288	µg/L	3	**604**	**1,630**	Remains a rising trend **(Table 26)**
Clyde Dive	SMW_ENV009_w	Total Phosphorus	d	0.13	mg/L	0.26	**0.44**	**0.42**	Remains a rising trend **(Table 26)**
	GALC-MW16_w	Total Phosphorus	e	0.05	mg/L	0.03	**0.35**	**2.28**	Remains a rising trend **(Table 26)**
	SMW_ENV039_w	Copper	e	3	µg/L	**13**	**10**	5	No longer a rising trend
Parramatta	PM_BH14	Copper	f	2	µg/L	4	**16**	**74**	Remains a rising trend **(Table 26)**
Westmead	SMW_WTP_BH03A_w	Total Phosphorus	h	0.19	mg/L	0.29	**0.39**	**0.47**	Remains a rising trend **(Table 26)**
	SMW_WTP_BH02	Copper	h	17	µg/L	**115**	**87**	4	No longer a rising trend

Bold indicates an exceedance of the trigger value
a = Clyde Zone 1 Shallow Aquifer Trigger Values
b = Clyde Zone 5a Shallow Aquifer Trigger Values
c = Rosehill Deep Aquifer Trigger Values
d = Clyde Zone 3 Shallow Aquifer Trigger Values
e = Clyde Zone 3 Deep Aquifer Trigger Values
f = Parramatta Shallow Aquifer Trigger Values
g= PFAS NEMP 2020 Interim Marine 95%
h = Westmead Deep Aquifer Trigger Values

5.5.1.2 October 2024 GME

The reportable changes in groundwater quality are detailed in **Table 29**. The Mann-Kendall analysis is shown in **Appendix G – Mann Kendall trend analysis**. The Mann-Kendall analysis identified that most of these parameters are not statistically significant and can return to quarterly monitoring.

Statistically significant reportable changes were identified for the following parameters:

- PM_BH14_w – Copper
- SMW_WTP_BH03A_w – Total Phosphorus

Therefore, a risk assessment was completed to determine whether management actions were required, in accordance with **Section 4.2.1** and **Figure 2**.This risk assessment, detailed in

Appendix H – Reportable Changes Risk Assessment, identified that management actions **were not required**, and quarterly monitoring of these parameters can continue.

The following potential increasing trends, provided in **Table 30**, were identified in the October 2024 GME, and will be checked in the successive quarterly monitoring rounds.

The August 2024 GME identified potential increases which have been checked during the October 2024 GME and are presented in **Table 31**.

Table 29 October 2024 GME reportable changes in groundwater quality

Monitoring zone	GWMW ID	Analyte	Guideline	Trigger	Unit	May/June 2024 GME	Aug 2024 GME	Oct 2024 GME	Assessment
Clyde MSF	CZ1_BH13	PFOS	a	0.13	µg/L	**0.42**	**0.56**	**0.46**	No further review required – not considered statistically significant based on Mann Kendall analysis*.
	SMW_WTP_BH25_s	Ammonia as N	b	1.9	mg/L	**15.4**	**5.84**	**8.91**	
		Nitrogen (Total)	b	2.32	mg/L	**17.8**	**12.6**	**10.8**	
		Chlorobenzene	c	55	µg/L	**686**	**296**	**479**	
	SMW_WTP_BH25_w	Nitrogen (Total)	b	2.32	mg/L	**5.3**	**5.6**	**4.9**	
Clyde Dive	GALC-MW16_w	Total Phosphorus as P	d	0.05	mg/L	**0.35**	**2.28**	**0.11**	
	SMW_ENV009_w	Total Phosphorus as P	e	0.13	mg/L	**0.44**	**0.42**	**0.46**	
PTA	PM_BH14_w	Copper (filtered)	f	2	µg/L	**15**	**75**	**19**	Statistically significant reportable change based on Mann Kendall analysis* - desktop assessment completed (**Appendix H – Reportable Changes Risk Assessment**), continue with quarterly monitoring
	SMW_BH004_s	Nitrate (as N)	g	2.4	mg/L	**11.1**	**10.1**	**7.09**	No further review required – not considered statistically significant based on Mann Kendall analysis*.
		Copper (filtered)	h	2	µg/L	**24**	**58**	**34**	
WMD	SMW_WTP_BH03A_w	Total Phosphorus as P (Organic Phosphate as P)	i	0.192	mg/L	**0.39**	**0.47**	**2.84**	Statistically significant reportable change based on Mann Kendall analysis* - desktop assessment completed (**Appendix H – Reportable Changes Risk Assessment**), continue with quarterly monitoring

Bold indicates an exceedance of the trigger value
* Mann Kendall analysis includes data from all available monitoring events

e = SMW WTP-CZ3-Shallow-Marine - Trigger Values
f = SMW WTP-PM-Shallow-Freshwater - Trigger Values

Monitoring zone	GWMW ID	Analyte	Guideline	Trigger	Unit	May/June 2024 GME	Aug 2024 GME	Oct 2024 GME	Assessment

a = PFAS NEMP 2020 Interim Marine 95%
b = SMW WTP-CZ1-Shallow-Marine - Trigger Values
c = ANZG Marine Water Toxicant DGVs LOSP 95%
d = SMW WTP-CZ3-Deep-Marine - Trigger Values
g = NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species
h = SMW WTP-PM-Shallow-Freshwater - Trigger Values
i = SMW WTP-WM-Deep-Freshwater - Trigger Values

Table 30 October 2024 potential increasing trends

Monitoring zone	GWMW ID	Analyte	Guideline	Trigger	Unit	Aug 2024	October 2024
Clyde Dive	SMW_ENV010_w (replacement to GALC-MW18)	Arsenic (filtered)	a	6	µg/L	2 (GALC-MW18)	**12** (SMW_ENV010_w)
Clyde Dive	SMW_BH057_s	Copper (filtered)	a	3	µg/L	**21**	**39**
Clyde Dive	SMW_ENV039_w	Copper (filtered)	a	3	µg/L	**5**	**153**
Parramatta	PM_BH14_w	Nitrate (as N)	b	2.4	mg/L	**3.1**	**4.12**
Rosehill	CZ4e_MW02_w	Copper (filtered)	c	4	µg/L	<1	**73**
		Nickel (filtered)	c	30	µg/L	26	**106**
Westmead	SMW_WTP_BH03A_w	Nitrogen (Total)	d	3.14	mg/L	**5.7**	**12.8**

Bold indicates an exceedance of the trigger value
a = SMW WTP-CZ3-Shallow-Marine - Trigger Values
b = NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species
c = SMW WTP-RH-Shallow-Marine - Trigger Values
d = SMW WTP-WM-Deep-Freshwater - Trigger Values

Table 31 August 2024 GME rising trends compared to October 2024 GME

Monitoring zone	GWMW ID	Analyte	Guideline	Trigger	Unit	May/June 2024	Aug 2024	Octo 2024	Comment
Clyde MSF east – Zone 1	SMW_WTP_BH25_w	Total Nitrogen	a	2.32	mg/L	**5.3**	**5.6**	**10.8**	A reportable change (refer **Table 29**)
	CZ5_MW16*	Ammonia	b	3.475	mg/L	**8.2** (SMW_ENV226_s)	**7.31** (CZ5a_MW103)	**5.54** (CZ5a_MW103)	
Rosehill	SMW_ENV145	Copper	c	288	µg/L	**604**	**1,630**	66	No longer a rising trend
	CZ4E_MW02_W	Reactive Phosphorus	d	0.005	mg/L	**0.01**	**0.02**	<0.01	
Clyde Dive – Zone 3	SMW_ENV009_w	Total Phosphorus	e	0.13	mg/L	**0.44**	**0.42**	**0.46**	A reportable change (refer **Table 29**)
	GALC-MW16_w	Total Phosphorus	f	0.05	mg/L	**0.35**	**2.28**	**0.11**	
Parramatta	PM_BH14	Copper	g	2	µg/L	**16**	**74**	**19**	A statistically significant reportable change (refer **Table 29**)
		PFOS	h	0.13	µg/L	**0.25**	**0.22**	0.10	No longer a rising trend
Westmead	SMW_WTP_BH03A_w	Total Phosphorus	i	0.19	mg/L	**0.39**	**0.47**	**2.84**	A statistically significant reportable change (refer **Table 29**)

Bold indicates an exceedance of criteria
*Destroyed in R6 (May 2024). Supplemented using replacement GWMWs SMW_ENV226_s and then CZ5a_MW103
a = SMW WTP-CZ1-Shallow-Marine - Trigger Values
b = SMW WTP-CZ5a-Shallow-Marine - Trigger Values
c = SMW WTP-RH-Deep-Marine - Trigger Values
d = ANZECC 2000 SE Aust Triggers - Estuaries
e = SMW WTP-CZ3-Shallow-Marine - Trigger Values
f = SMW WTP-CZ3-Deep-Marine - Trigger Values
g = SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)
h = PFAS NEMP 2020 Interim Freshwater 95%
i= SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)

5.5.2 Performance Criteria Assessment (Salinity)

This assessment has been undertaken by a suitably qualified hydrogeologist.

Reportable changes in the performance criteria for salinity has been completed for the August 2024 and October 2024 GMEs, using the Rev D GMP. No reportable changes in salinity were measured. Salinity measurements are shown in **Appendix I – Salinity and pH in-situ Measurements**.

5.5.3 Performance Criteria Assessment (Acid Sulfate Soils)

This assessment has been undertaken by a suitably qualified hydrogeologist.

Reportable changes in the performance criteria for acid sulfate soils has been completed for the August 2024 and October 2024 GMEs, using the Rev D GMP. No reportable changes in pH were measured. The pH measurements are shown in **Appendix I – Salinity and pH in-situ Measurements**.

5.6 Water Treatment Plants

5.6.1 Results

5.6.1.1 Rosehill Permanent Water Treatment Plant

During the reporting period, eleven (11) sampling events occurred at the Rosehill Permanent Water Treatment Plant. Each sampling event consisted of a sample collected pre-treatment and a sample collected post-treatment. The post-treatment results are specified in **Table 32**.

Table 32 Post Treatment Rosehill WTP Sampling Results within Reporting Period (next page)

		Lab Report Number:	354470	354644	SE268429	SE269742	362087	364107	364196	366386	369055	369167	370569
		Sample Date:	20/6/2024	24/6/2024	23/7/2024	19/8/2024	18/9/2024	16/10/2024	17/10/2024	14/11/2024	16/12/2024	17/12/2024	16/1/2025
Parameter	**Units**	**Criteria**											
Ammonia	µg/l	*910*	100	230	90	130	210	770	120	64	110	180	93
Chromium (VI)	µg/l	*15*	1	1	5	<1	6	11	<0.01	<1	1	<1	9
Cobalt	µg/l	*5*	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	µg/l	*1.3*	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1
Nitrogen (total)	µg/l	*1,200*	800	900	990	550	800	1700	100	600	1,800	1,200	600
Nitrate + Nitrite (Oxidised nitrogen)	µg/l	*1,200*	500	670	720	140	550	1000	<0.05	560	1,600	980	300
PFOS	µg/l	*0.13t[4]*	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pH (probe)	pH	*6.5 – 8.5*	3.6	6.8	7.5	7.28	6.91	7.8	8.5	7.36	7.21	7.21	8.18
Phosphorus (total)	µg/l	*90*	10	50	<20	<20	10	30	<1	30	20	10	30
Zinc	µg/l	*12*	1	<1	<10	<5	<1	2	7	3	2	1	<1

5.6.1.2 Westmead Permanent Water Treatment Plant

The Westmead permanent water treatment plant, identified as Point 3, was commissioned on 10th January 2024. It was operating to discharge until 19th January 2024. Following this, the demand to reuse treated water onsite matched that of the supply from the water treatment plant and there has been no discharge to the environment since.

There have been no sampling events for the Westmead water treatment plant over the reporting period.

5.6.1.3 Parramatta Construction Water Treatment Plant

During the reporting period, eight (8) sampling events occurred at the Parramatta Construction Water Treatment Plant. Each sampling event consisted of a sample collected pre-treatment and a sample collected post-treatment. The post-treatment results are specified in **Table 33.**

Table 33. Parramatta Construction Water Treatment Plant Post Treatment Results

		Lab Report Number:	SE268756	SE269563	SE270062	SE271430	SE272819	SE274252	SE275908	370296
		Sample Date:	29/7/24	15/8/24	26/8/24	23/9/24	21/10/24	19/11/24	17/12/24	13/1/24
Parameter	Units	Criteria								
Ammonia	*µg/l*	*790*	10	130	110	530	240	100	30	6
Arsenic	*µg/l*	*13[1]*	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium	*µg/l*	*0.7*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (VI)	*µg/l*	*4.4*	<1	1	<1	<1	3	<1	<1	2
Chromium (trivalent)	*µg/l*	*4.4*	<1	<1	<1	<1	<1	<5	<5	<4
Cobalt	*µg/l*	*1*	<1	<1	<1	<1	<1	<1	<1	<1
Copper	*µg/l*	*1.3*	<1	1	<1	<1	1	<1	<1	<1
Iron	*µg/l*	*300[2]*	<5	<5	<5	6	6	<5	<5	<10
Lead	*µg/l*	*1*	<1	<1	<1	<1	<1	<1	<1	<1
Manganese	*µg/l*	*1900*	<1	<1	<1	<1	10	<1	<1	<5
Mercury	*µg/l*	*0.4*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05
Nickel	*µg/l*	*35*	<1	<1	<1	<1	<1	<1	<1	<1
Nitrate + Nitrite (oxidised nitrogen)	*µg/l*	*300*	<5	8	72	280	160	<5	<5	300
Nitrogen (total)	*µg/l*	*1200*	60	160	220	1000	600	130	<50	400
Oil and grease	*Visible*	*None visible*	None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	None Visible
PFOS	*µg/l*	*0.0091*	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.0002
pH (probe)	*pH*	*6.5 – 8.5*	7.91	8.49	8.28	7.88	6.55	7.21	7.79	7.74
Phosphorus (total)	*µg/l*	*90*	40	<20	<20	30	40	<20	20	<10
TPH - C10-C36 Fraction	*µg/l*	*100*	<100	<100	<100	<100	<50	<100	<50	100

		Lab Report Number:	SE268756	SE269563	SE270062	SE271430	SE272819	SE274252	SE275908	370296
		Sample Date:	29/7/24	15/8/24	26/8/24	23/9/24	21/10/24	19/11/24	17/12/24	13/1/24
Parameter	Units	Criteria								
TPH - C6-C9 Fraction	*µg/l*	*100*	<10	<10	<10	<5	69	<10	12	<10
Turbidity (probe)	*NTU*	*10*	0.0	0.0	1.1	0.6	0.1	0	0.5	0
Zinc	*µg/l*	*12*	<5	<5	<5	<5	4	<1	<1	<1

5.6.2 Discussion

5.6.2.1 Rosehill Permanent Water Treatment Plant

Over the reporting period, there have been two sampling events that returned elevated concentrations of analytes requiring a secondary sample to be undertaken. These are noted below:

- 16th October 2024 returned elevated results for Nitrogen (total), 1,700ug/L compared to the 1,200ug/L licence criteria
- 16th December 2024 returned elevated results for Nitrogen (Total) and Oxidised Nitrogen. With results of Nitrogen (total) 1,800ug/L and Oxidized Nitrogen 1,600ug/L compared to the 1,200ug/L licence criteria.

As per the results, all other (8) sampling events undertaken during the reporting period have not returned elevated concentrations compared to the criteria outlined in the EPL 21676 for the Rosehill Permanent Water Treatment Plant.

On December 19th 2024, a variation to the EPL was approved to support the increased discharge criteria for Chromium VI and Total Nitrogen. 50th Percentile and 100th Percentile limits for Chromium VI of 15ug/L and 30ug/L, respectively. 90th Percentile and 100th Percentile limits for Total Nitrogen of 1200ug/L and 1800ug/L, respectively.

5.6.2.2 Westmead Permanent Water Treatment Plant

The Westmead Permanent Water Treatment Plant was commissioned on 10th January 2024 following three (3) daily compliant results. It was operating to discharge until 19th January 2024. All sampling events undertaken during the reporting period were compliant with the discharge requirement of the EPL 21676 for the Westmead Permanent Water Treatment Plant.

As the Westmead station box and mined tunnels have not encountered significant volumes of groundwater, the demand to reuse treated water onsite matched that of the supply from the water treatment plant and there has been no discharge to the environment since 19th January 2024.

5.6.2.3 Parramatta Construction Water Treatment Plant

The Parramatta Construction Water Treatment Plant was commissioned after three (3) subsequent compliant results were returned on the 8th March 2024. As per the results, all sampling events undertaken during the reporting period were compliant with the discharge requirement of the EPL 21676 for the Parramatta Construction Water Treatment Plant.

Over the reporting period, there were two periods where the demand to reuse treated water on-site has matched that of supply from the Parramatta construction water treatment plant and there was a suspension in discharge to the environment. These periods have included:

- 18th July 2024 to 31st July 2024
- 15th August 2024 to 16th August 2024

When on-site demand was reduced, water quality monitoring was undertaken and continuous discharge recommenced from the Parramatta Construction Water Treatment Plant in accordance with the requirements of EPL 21676.

6 CONCLUSION

6.1 Overview

Groundwater quality and level results from the August 2024 GME and October 2024 GME indicate that the majority of locations are comparable to applicable baseline results. However, it is noted that the monitoring network is constantly changing due to ongoing construction works across the project. The changing network continues to be sufficient to inform this monitoring report.

Each GME ensures that a representative number of samples are taken and gauged, to ensure that comparable changes in groundwater quality and level can be observed. The GMP's groundwater quality performance criteria are area and aquifer specific, rather than GWMW specific. This allows for managing the changes in the groundwater network.

6.2 Groundwater Level

For groundwater level monitoring, reportable changes were identified at five GWMWs. These GWMWs are in the Clyde Dive and Rosehill area where dewatering activities are currently taking place. Reportable changes were identified from comparing current drawdown to modelled predictions of drawdown. There are no reportable changes when comparing to AIP criteria. Therefore, the recommended action is to continue monitoring of the groundwater level and drawdown.

For SMW_ADD_BH02_w, a replacement GWMW (GALC_MW16_w) has been used to monitor groundwater level drawdown. This GWMW is being monitored as part of the geotechnical groundwater monitoring. For SMW_ENV042_w, a logger has been installed in CZ4e_MW02 (manual measurements of SWL have been recorded since October 2022), and no reportable changes have been identified.

Inflow estimates into the excavations for the reporting period have been calculated from drawdown, using the Cooper-Jacob method. These are detailed in **Section 5.4** and are based on the observed groundwater drawdown from the GWMW network.

6.3 Groundwater Quality

Reportable changes in groundwater quality were identified in both the August and October 2024 GMEs, which are detailed below in **Table 34**.

Table 34: Summarises the reportable changes in groundwater quality in the August and October 2024 monitoring events.

August 2024 GME	October 2024 GME
• Clyde MSF – SMW_WTP_BH25_s ○ Ammonia ○ Total nitrogen ○ Chlorobenzene – CZ1_BH13 ○ PFOS	• Clyde MSF – SMW_WTP_BH25_s ○ Ammonia ○ Total nitrogen ○ Chlorobenzene – SMW_WTP_BH25_w ○ Total nitrogen

August 2024 GME	October 2024 GME
• Parramatta – SMW_BH004_s o Copper o Nitrate o	– CZ1_BH13 o PFOS • Clyde Dive – GALC_MW16_w o Total phosphorus – SMW_ENV009_w o Total phosphorus • Parramatta – PM_BH14_w o Copper – SMW_BH004_s o Copper o Nitrate • Westmead – SMW_WTP_BH03A_w o Total phosphorus

The Mann Kendall analysis for these reportable events is shown in **Appendix G – Mann Kendall trend analysis**. Reportable changes from the August 2024 GME were not considered statistically significant. For the From this analysis, two reportable events were considered statistically significant:

Parramatta

- PM_BH14_w (copper)

Westmead

- SMW_WTP_BH03A_w (total phosphorus)

Therefore, a risk assessment was completed to determine whether management actions were needed, in accordance with the Rev D GMP **(Section 4.2)**. The risk assessment determined that management actions were not needed, and continuation of quarterly monitoring is required. The risk assessment is detailed in **Appendix H – Reportable Changes Risk Assessment**.

6.4 Water Treatment Plants

The Westmead, Parramatta and Rosehill Water Treatment Plants were operating during the reporting period. At the Rosehill, Parramatta and Westmead sites, there continues to be a high demand for recycled water to be utilised as part of key construction activities and as a result discharge to the environment has been reduced or suspended on occasion. When on-site demand is reduced, water quality monitoring is once again undertaken and continuous discharge recommences in accordance with the requirements of EPL 21676.

7 REFERENCES

ANZECC/ARMCANZ (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*

(ANZG 2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*

Australian/New Zealand Standards (1998). *Water Quality – Sampling Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples.* AS/NZS 5667.1:1998, Reconfirmed 2016. Standards Australia, NSW.

Australian/New Zealand Standards (1998). *Water Quality – Sampling Part 11: Guidance on Sampling of Groundwater*. AS/NZS 5667.11.1998, Reconfirmed 2016. Standards Australia, NSW.

GLC (2022b). *Technical Report: Sydney Metro West – Western Tunnelling Package – Hydrogeological Interpretative Report (including Groundwater Modelling)*, SSMWSTWTP-GLO-1NLNL000-GE-RPT-000001, Rev C, 12 May 2022

GLC (2022c). *Project report: Groundwater Modelling Report – Rosehill Service Facility*, s.l.: Sydney Metro

GLC (2024). *Project Construction Groundwater Monitoring Program*, SMWSTWTP-GLO-1NL-EN-PRG-000002, Rev D, 21 August 2022

Kruseman, G.P. & De Ridder, N.A. (1994) *Analysis and evaluation of pumping test data*. 2nd edn. Wageningen: International Institute for Land Reclamation and Improvement.

DPI-Water (2012). *NSW Aquifer Interference Policy.*

HEPA (2020) *PFAS National Environmental Management Plan (Version 2.0).*

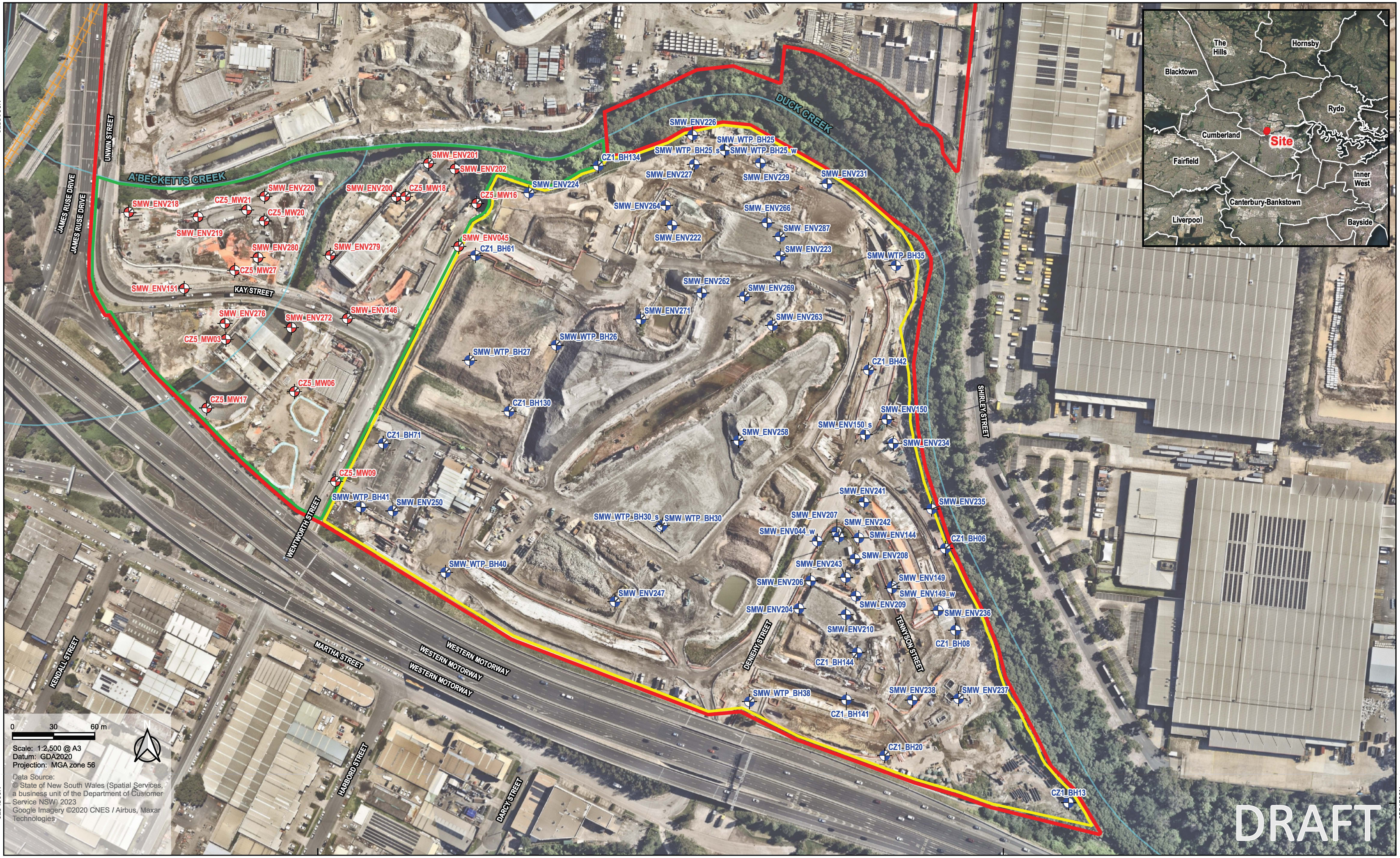
Jacobs/Arcadis (2020). *Environmental Impact Statement Concept and Stage 1.*

Jacobs (2020). *Environmental Impact Statement Concept and Stage 1 Technical Paper 7 Hydrogeology.*

NEPC (2013). *National Environment Protection (Assessment of Site Contamination) Measure.*

APPENDIX A – FIGURES

Groundwater quality trigger areas



Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC220037.10 GWMP\1. Trigger Value - Update of Performance Criteria\Figure F1 Clyde Zone 1 and Clyde Zone 5a.qgz

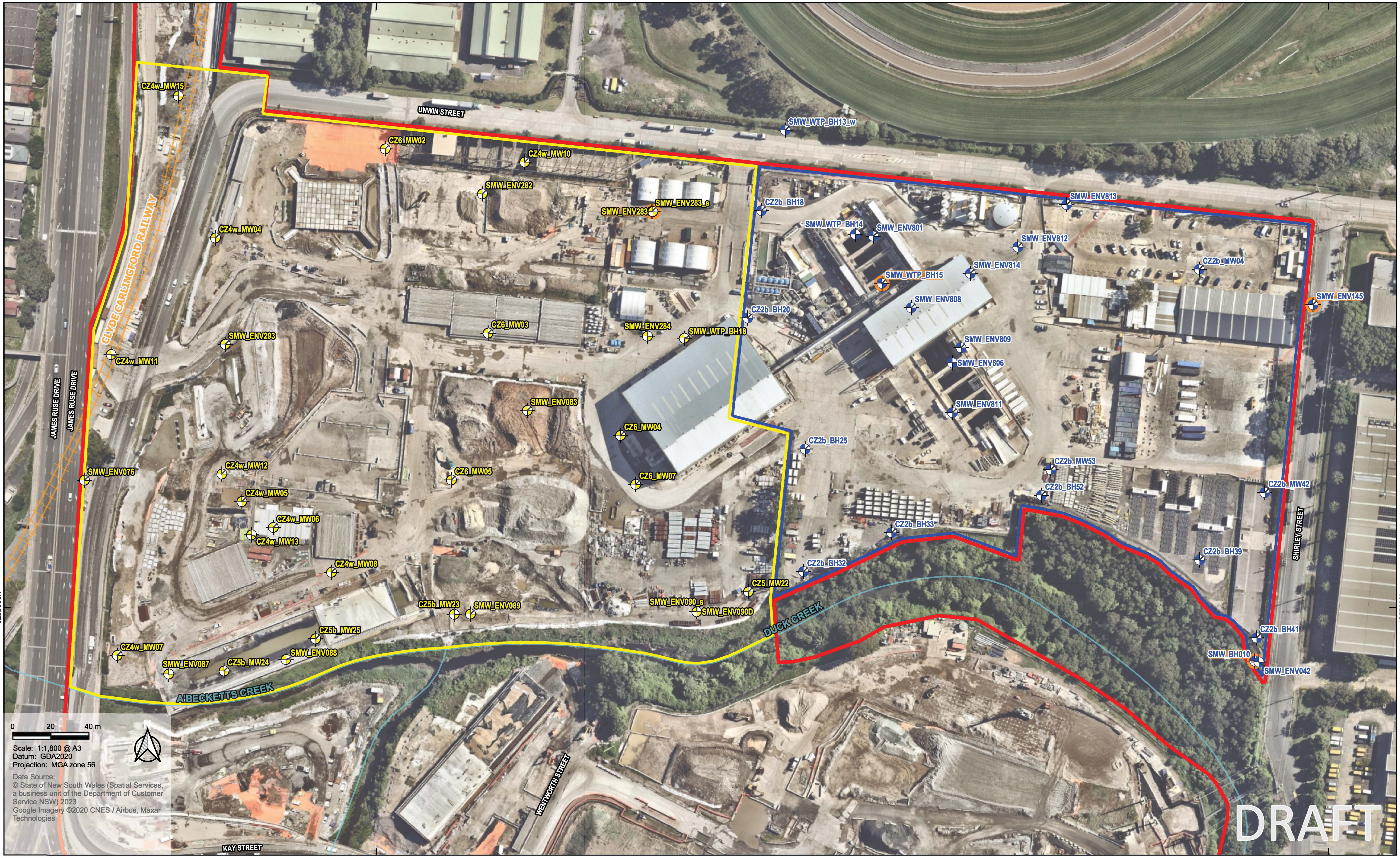
Legend

- Clyde boundary
- Clyde Zone 1 boundary
- Clyde Zone 5a boundary
- Railway
- Watercourse
- Groundwater monitoring well - Clyde Zone 1
- Groundwater monitoring well - Clyde Zone 5a

epic ENVIRONMENTAL

Gamuda Laing O'Rourke
Sydney Metro West Western Tunnelling Package
Trigger Value - Update of Performance Criteria

Figure F3
Clyde Zone 1 and Clyde Zone 5a



Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC220037 10 GWMP\1. Trigger Value - Update of Performance Criteria\Figure F2 Clyde Zone 2 4 5b 6.qgz

Legend

- Clyde boundary
- Clyde Zone 2 boundary
- Clyde Zone 4, 5b and 6 boundary
- Railway
- Watercourse
- Groundwater monitoring well - Clyde Zone 1
- Groundwater monitoring well - Clyde Zone 5a
- Deep well

epic ENVIRONMENTAL

Gamuda Laing O'Rourke
Sydney Metro West Western Tunnelling Package
Trigger Value - Update of Performance Criteria

Figure F3
Clyde Zone 2 and Clyde Zone 4, 5b and 6

SC210108.01 Rev A 09/05/2024

Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SCL220037.10 GWMP\1. Trigger Value - Update of Performance Criteria\Figure F3 Clyde Zone 3.qgz

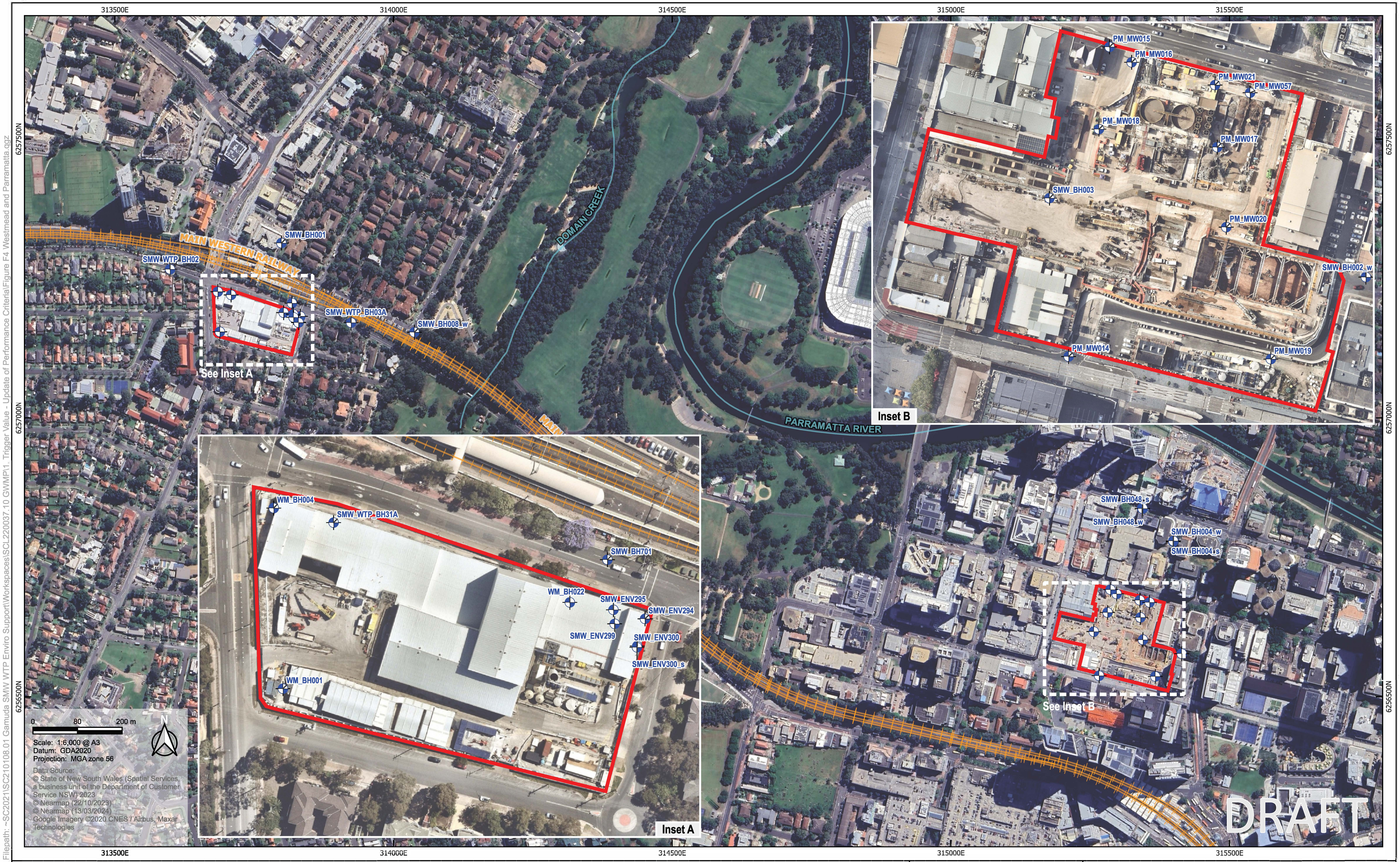
Legend

- Clyde boundary
- Clyde Zone 3 boundary
- Watercourse
- Groundwater monitoring well

Gamuda Laing O'Rourke
Sydney Metro West Western Tunnelling Package
Trigger Value - Update of Performance Criteria

Figure F3
Clyde Zone 3

SCL230080.01 Rev A 13/05/2024



Legend

- Westmead and Parramatta boundary
- Railway
- Watercourse
- Groundwater monitoring well

epic ENVIRONMENTAL

Gamuda Laing O'Rourke
Sydney Metro West Western Tunnelling Package
Trigger Value - Update of Performance Criteria

Figure F3
Westmead and Parramatta

SC210108.01 Rev A 13/05/2024

August 2024 GME

Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and logger data collected

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Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round August 2024

Figure F1
Overview of groundwater monitoring wells (Page 1 of 5)

SC210108.01 Rev A 16/09/2024

Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\08 August 2024 - Monitoring Event R8\Figure F1 Groundwater monitoring program - August monitoring round.qgz

Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and logger data collected

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round August 2024

Figure F1
Overview of groundwater monitoring wells (Page 2 of 5)

SC210108.01 Rev A 16/09/2024

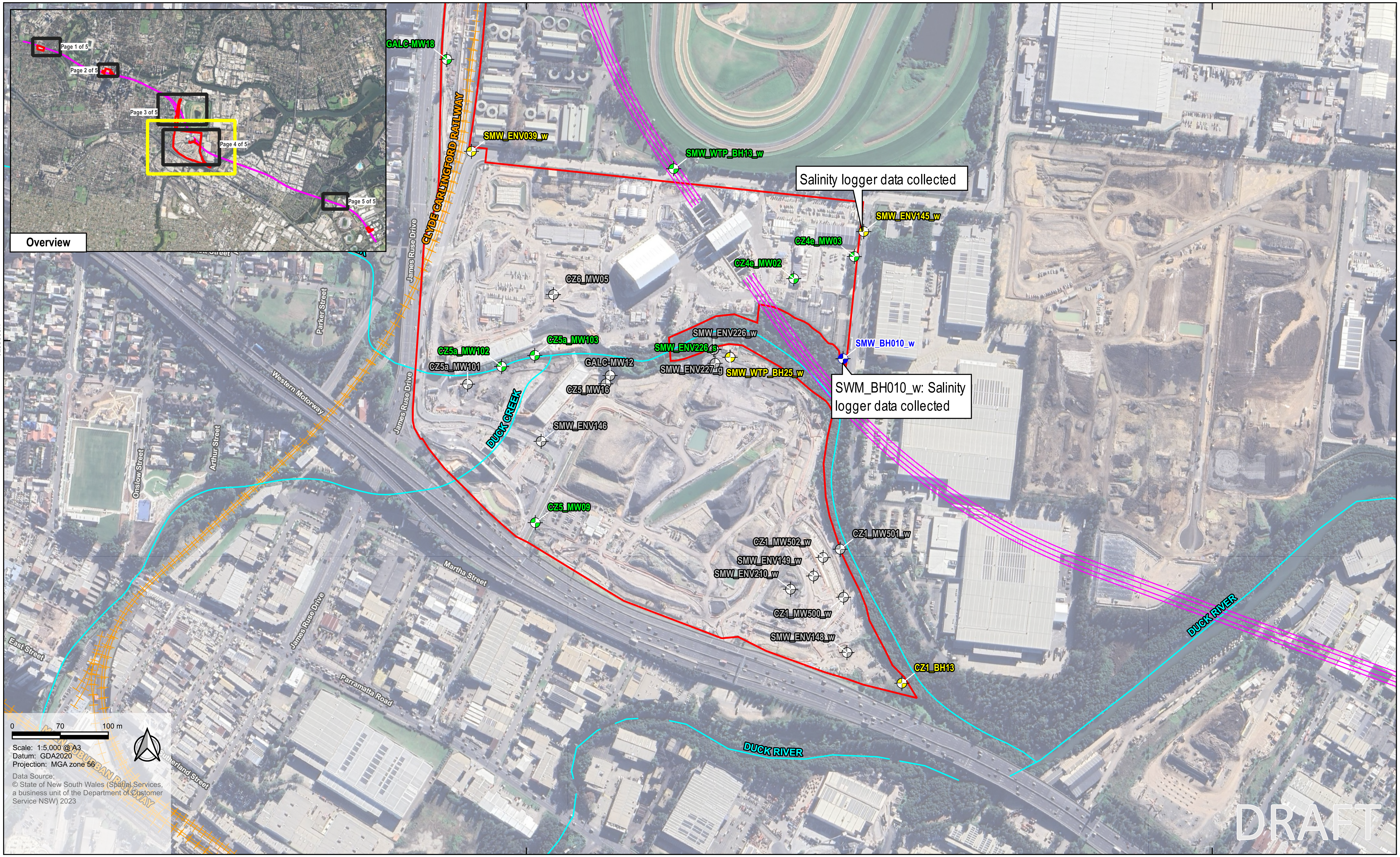
Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and sample collected
- Manual water level and logger data collected

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round August 2024

Figure F1
Overview of groundwater monitoring wells (Page 3 of 5)

SC210108.01 Rev A 16/09/2024



Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\08 August 2024 - Monitoring Event R8\Figure F1 Groundwater monitoring program - August monitoring round.qgz

Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Manual water level, logger data, and sample collected
- Manual water level and sample collected
- Manual water level and logger data collected
- Inaccessible / destroyed

epic ENVIRONMENTAL

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round August 2024

Figure F1
Overview of groundwater monitoring wells (Page 4 of 5)

SC210108.01 Rev A 16/09/2024

Legend

- Proposed tunnel alignment
- Watercourses
- Only manual water level data collected
- Manual water level and logger data collected

epic ENVIRONMENTAL

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round August 2024

Figure F1
Overview of groundwater monitoring wells (Page 5 of 5)

October 2024 GME

Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\09 October 2024 - Monitoring Event R9\Rev A\Figure F1 Groundwater monitoring program - October monitoring round.qgz

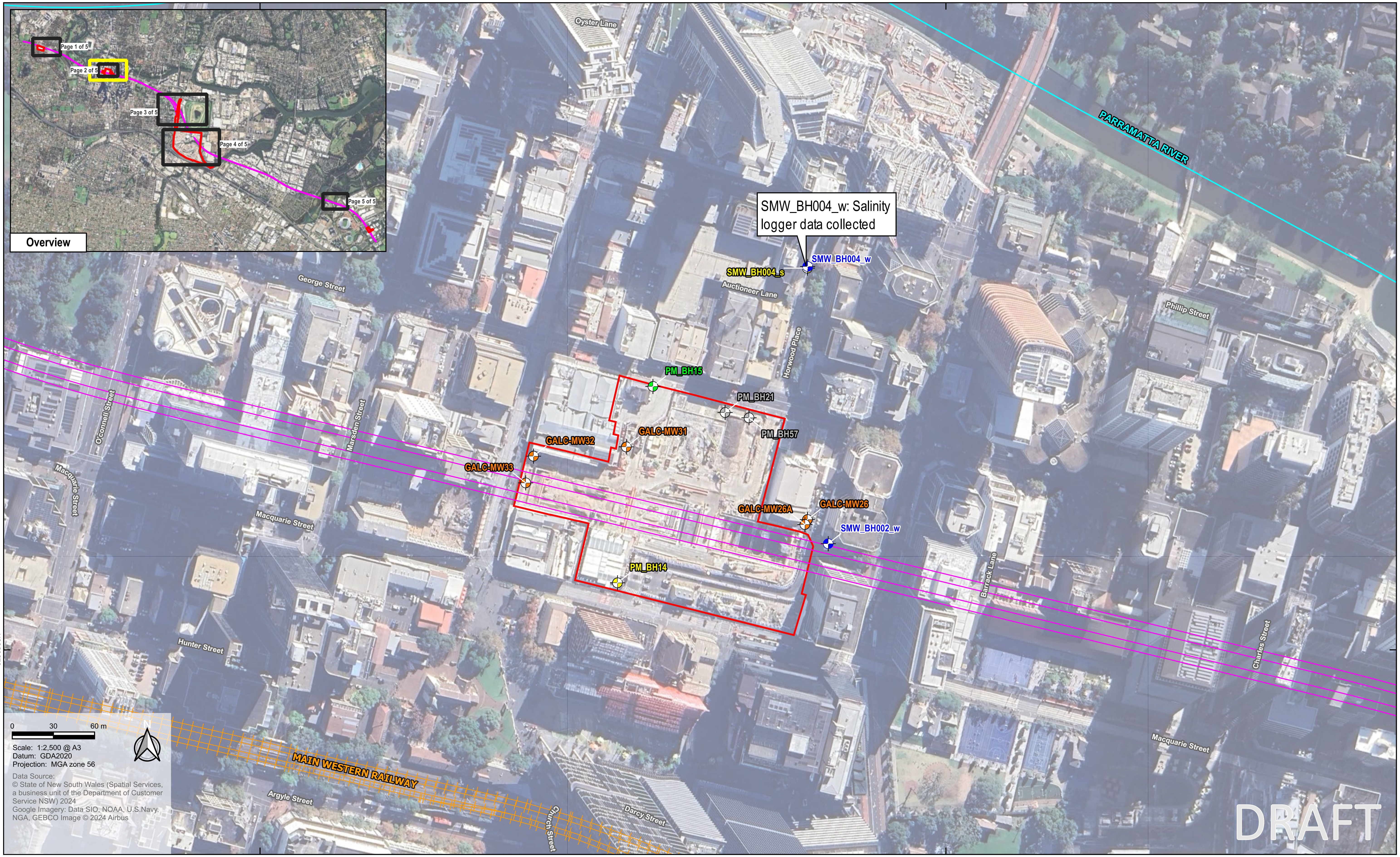
Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and logger data collected

epic
A Montrose Environmental Company

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2024

Figure F1
Overview of groundwater monitoring wells (Page 1 of 5)



Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\09 October 2024 - Monitoring Event R9\Rev A\Figure F1 Groundwater monitoring program - October monitoring round.qgz

Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and sample collected
- Manual water level and logger data collected
- Inaccessible / destroyed

epic
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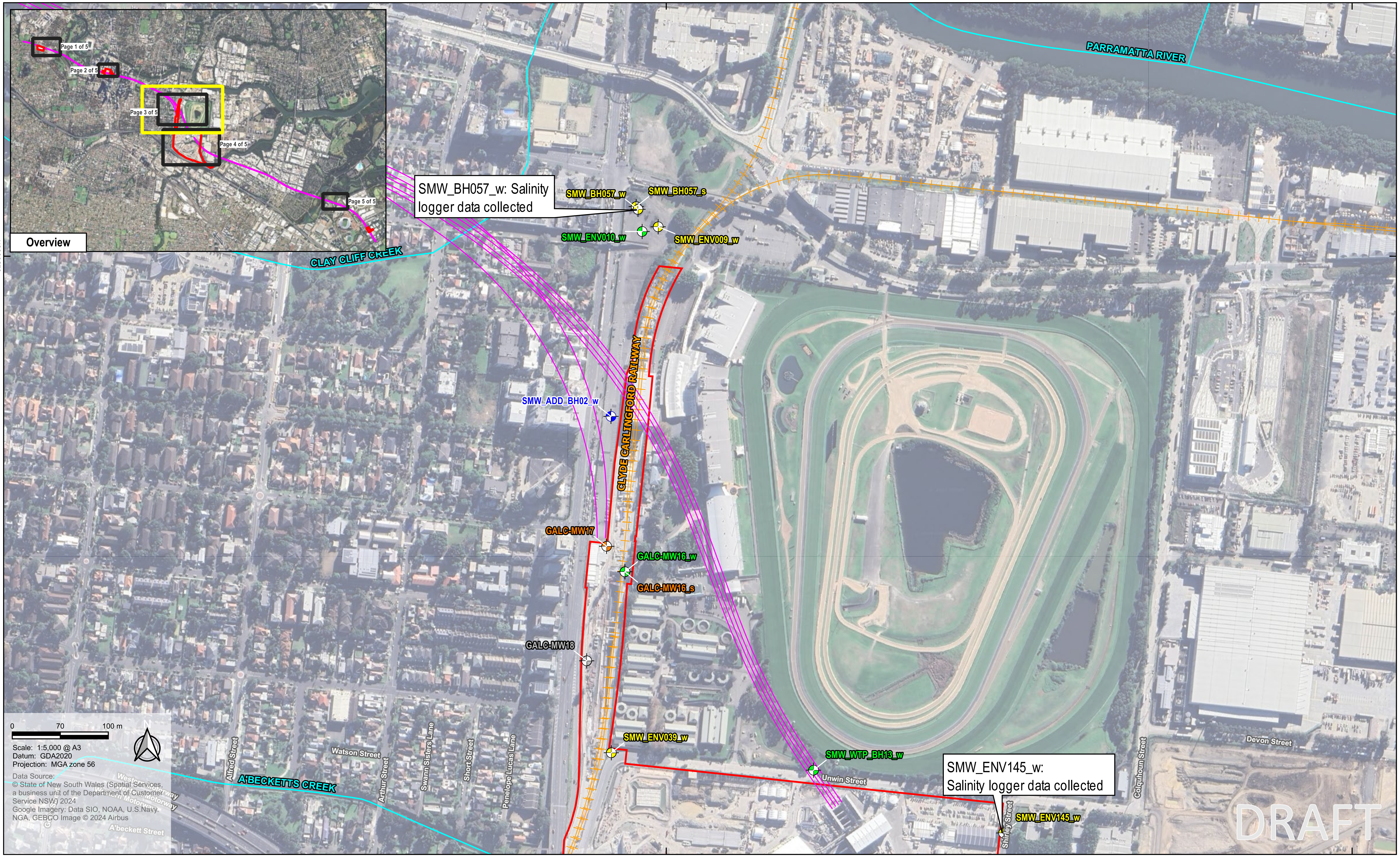
Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2024

Figure F1
Overview of groundwater monitoring wells (Page 2 of 5)

SC210108.01 Rev A 02/12/2024



Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\09 October 2024 - Monitoring Event R9\Rev A\Figure F1 Groundwater monitoring program - October monitoring round.qgz

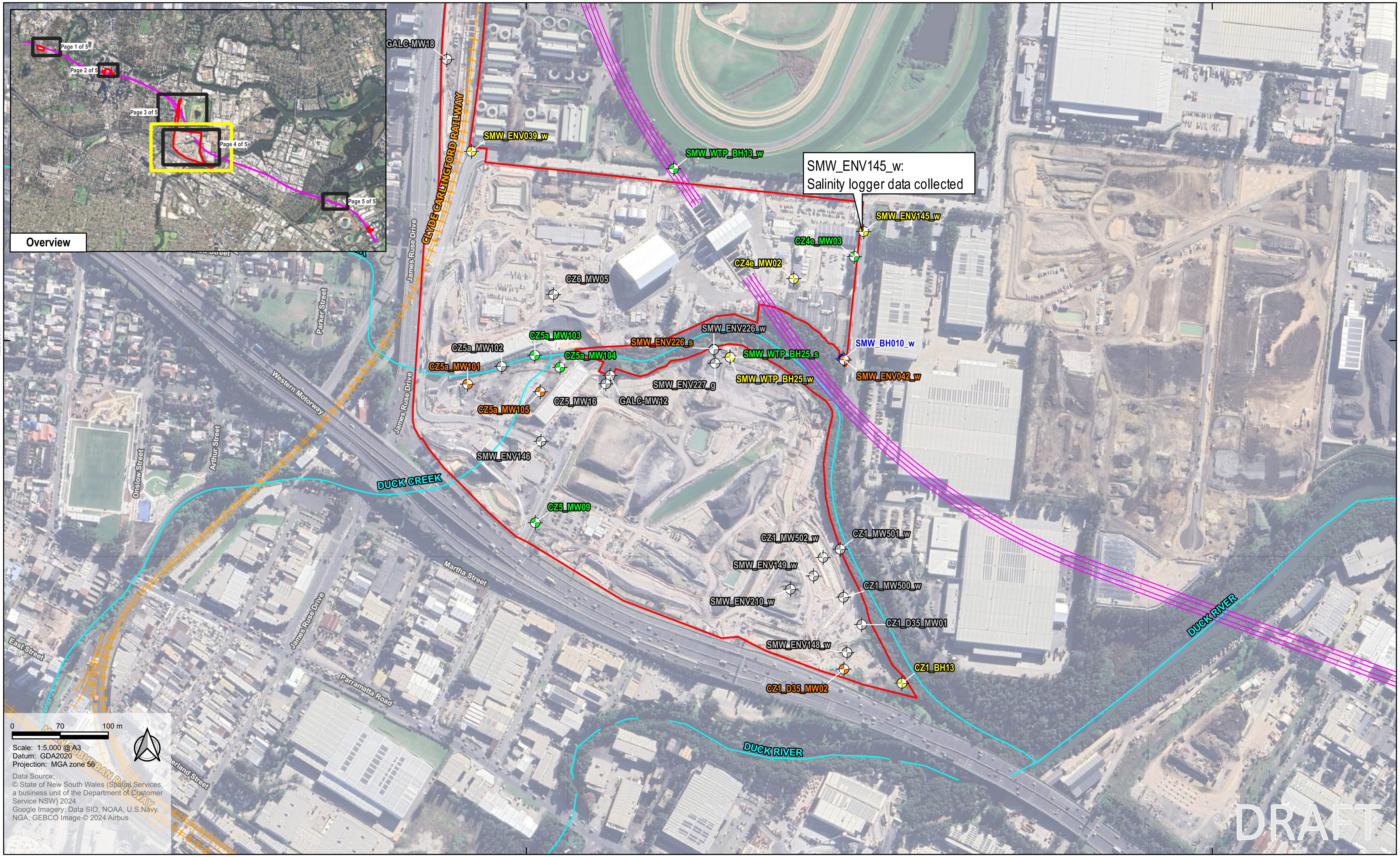
Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and sample collected
- Manual water level and logger data collected
- Inaccessible / destroyed

epic
A Montrose Environmental Company

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2024

Figure F1
Overview of groundwater monitoring wells (Page 3 of 5)



Legend

- Site boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Only manual water level data collected
- Manual water level, logger data, and sample collected
- Manual water level and sample collected
- Manual water level and logger data collected
- Inaccessible / destroyed

epic
A Montrose Environmental Company

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2024

Figure F1
Overview of groundwater monitoring wells (Page 4 of 5)

Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\09 October 2024 - Monitoring Event R9\Rev A\Figure F1 Groundwater monitoring program - October monitoring round.qgz

Legend

- Proposed tunnel alignment
- Watercourses
- Only manual water level data collected
- Manual water level and logger data collected

epic
A Montrose Environmental Company

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2024

Figure F1
Overview of groundwater monitoring wells (Page 5 of 5)

APPENDIX B – TABLES

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							NA				Amino Aliphatics				Physico-Chemical & Major Ions												
							Ammonium as N	Atrazine Desispropyl	Atrazine-desethyl	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)
							mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	0.0001	0.1	2	2	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																	7-8.5										
NEPM 2013 Table 1C GILs, Marine Waters																											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	66.2	6.03	6.30	11,800	5.7	7,410	4,060	538	<1	<1	112	112	81
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	238	6.51	7.24	28,200	6.8	18,900	8,760	2,440	<1	<1	209	209	208
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	202	7.25	7.59	3,630	5.1	2,140	658	348	<1	<1	484	484	155
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	42.3	5.24	5.44	23,600	4.4	19,500	6,380	5,500	<1	<1	62	62	291
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	89.3	5.88	6.16	5,930	5.8	3,750	1,730	662	<1	<1	65	65	44
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	92.3	5.28	5.65	19,400	5.3	13,700	6,310	1,110	<1	<1	21	21	66
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	<1	<1	127	127	481
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	152	6.93	7.07	2,830	6.5	1,660	712	200	<1	<1	247	247	77
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	49.6	6.40	6.80	29,500	6.3	21,500	10,900	1,600	<1	<1	358	358	337
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	68.6	7.05	7.43	17,100	3.9	12,000	5,860	282	<1	<1	831	831	241
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	80.8	6.30	6.60	8,280	4.2	4,950	2,600	368	<1	<1	188	188	28
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-15.3	6.52	7.33	7,620	6.7	5,610	1,430	1,770	<1	<1	365	365	461
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-67.4	6.88	7.47	1,980	4.8	1,230	188	172	<1	<1	692	692	158
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	8.9	6.55	7.11	8,030	6.3	4,550	2,110	257	<1	<1	538	538	198
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	73.1	6.34	6.74	567	5.5	330	36	80	<1	<1	139	139	13
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	2.83	<0.0001	<0.1	-	<2	<2	<2	<2	-37.4	7.31	7.77	14,600	5.9	9,560	4,120	342	<1	<1	822	822	222
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	7.30	<0.0001	<0.1	-	<2	<2	<2	<2	-21.2	6.78	7.33	33,600	7.0	23,000	11,000	343	<1	<1	768	768	364
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	-	<0.0001	<0.1	-	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	-	-	-	<2	-	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																											
Number of Results							**2**	**3**	**3**	**1**	**3**	**4**	**4**	**3**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**
Number of Detects							**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**0**	**0**	**17**	**17**	**17**
Minimum Concentration							**2.83**	**<0.0001**	**<0.1**	**<2**	**<2**	**<2**	**<2**	**<2**	**-67.4**	**5.24**	**5.44**	**567**	**3.9**	**330**	**36**	**80**	**<1**	**<1**	**21**	**21**	**13**
Minimum Detect							**2.83**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**-67.4**	**5.24**	**5.44**	**567**	**3.9**	**330**	**36**	**80**	**ND**	**ND**	**21**	**21**	**13**
Maximum Concentration							**7.3**	**<0.0001**	**<0.1**	**<2**	**<2**	**<5**	**<5**	**<2**	**238**	**7.31**	**7.77**	**33,600**	**7**	**23,000**	**11,000**	**5,500**	**<1**	**<1**	**831**	**831**	**481**
Maximum Detect							**7.3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**238**	**7.31**	**7.77**	**33,600**	**7**	**23,000**	**11,000**	**5,500**	**ND**	**ND**	**831**	**831**	**481**
Average Concentration *							**5.1**	**0.00005**	**0.05**		**1**	**1.4**	**1.4**	**1**	**72**	**6.4**	**6.8**	**14,210**	**5.6**	**9,905**	**4,476**	**1,008**	**0.5**	**0.5**	**355**	**355**	**201**
Median Concentration *							**5.065**	**0.00005**	**0.05**	**1**	**1**	**1**	**1**	**1**	**68.6**	**6.51**	**7.07**	**11,800**	**5.7**	**7,410**	**4,060**	**368**	**0.5**	**0.5**	**247**	**247**	**198**
Standard Deviation *							**3.2**	**0**	**0**		**0**	**0.75**	**0.75**	**0**	**87**	**0.6**	**0.68**	**10,641**	**0.95**	**7,844**	**3,765**	**1,336**	**0**	**0**	**283**	**283**	**146**
95% UCL (Student's-t) *							**19.18**	**0.00005**	**0.05**		**1**	**2.258**	**2.258**	**1**	**108.4**	**6.688**	**7.134**	**18,716**	**5.995**	**13,227**	**6,070**	**1,573**	**0.5**	**0.5**	**474.3**	**474.3**	**263.5**
% of Detects							**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**
% of Non-Detects							**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

															Amino Aromatics				Anilines						Nutr			
							Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
							mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/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	mg/L
EQL							1	1	1	0.01	0.01	0.01	1	2	5	5	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																								0.91			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																										2.4	
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	208	2,050	5	128	110	7.34	1,060	-	-	-	-	-	-	-	-	-	-	0.07	0.3	<0.01	<0.01
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	496	5,340	124	302	287	2.62	2,560	-	-	-	-	-	-	-	-	-	-	0.76	2.4	<0.01	<0.01
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	53	508	23	35.5	34.8	0.99	605	-	-	-	-	-	-	-	-	-	-	5.84	9.0	3.63	0.02
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	595	3,960	105	296	283	2.20	3,180	-	-	-	-	-	-	-	-	-	-	0.86	5.6	<0.01	<0.01
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	87	1,060	2	63.9	55.5	7.01	468	-	-	-	-	-	-	-	-	-	-	0.02	0.3	<0.01	<0.01
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	419	3,170	6	202	176	6.81	1,890	-	-	-	-	-	-	-	-	-	-	0.12	0.4	2.86	<0.01
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	613	4,140	14	286	255	5.79	3,720	-	-	-	-	-	-	-	-	-	-	0.75	18.0	<0.01	0.08
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	85	366	11	29.2	27.0	3.81	542	-	-	-	-	-	-	-	-	-	-	<0.01	0.4	0.06	<0.01
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	835	5,080	21	348	307	6.24	4,280	-	-	-	-	-	-	-	-	-	-	0.86	1.1	<0.01	<0.01
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	428	2,810	58	188	171	4.69	2,360	-	-	-	-	-	-	-	-	-	-	0.66	9.1	<0.01	<0.01
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	105	1,590	5	84.8	79.3	3.31	502	-	-	-	-	-	-	-	-	-	-	<0.01	0.3	<0.01	<0.01
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	236	956	81	84.5	86.1	0.94	2,120	-	-	-	-	-	-	-	-	-	-	7.78	13.3	0.02	<0.01
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	70	186	16	22.7	22.1	1.26	683	-	-	-	-	-	-	-	-	-	-	7.12	8.4	0.08	<0.01
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	159	1,130	30	75.6	72.9	1.84	1,150	-	-	-	-	-	-	-	-	-	-	0.71	1.0	<0.01	<0.01
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	20	72	12	5.46	5.73	2.46	115	-	-	-	-	-	-	-	-	-	-	0.02	0.2	0.09	<0.01
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	303	2,120	49	140	129	3.82	1,800	<2	-	-	<4	<4	<4	<2	<2	<2	<2	2.85	4.1	<0.01	0.03
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	742	6,720	198	333	376	6.18	3,960	<2	-	-	<4	<4	<4	<2	<2	<2	<2	7.31	8.5	<0.01	<0.01
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	-	-	-	-	-	-	-	<2	-	-	<4	<4	<4	<2	<2	<2	<2	-	-	-	-
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	-	-	-	-	-	-	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	-	-	-

Statistics

Number of Results	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**4**	**1**	**1**	**3**	**4**	**4**	**4**	**4**	**4**	**4**	**17**	**17**	**17**	**17**
Number of Detects	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**17**	**6**	**3**
Minimum Concentration	**20**	**72**	**2**	**5.46**	**5.73**	**0.94**	**115**	**<2**	**<5**	**<5**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**<0.01**	**0.2**	**<0.01**	**<0.01**
Minimum Detect	**20**	**72**	**2**	**5.46**	**5.73**	**0.94**	**115**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.02**	**0.2**	**0.02**	**0.02**
Maximum Concentration	**835**	**6,720**	**198**	**348**	**376**	**7.34**	**4,280**	**<5**	**<5**	**<5**	**<4**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**7.78**	**18**	**3.63**	**0.08**
Maximum Detect	**835**	**6,720**	**198**	**348**	**376**	**7.34**	**4,280**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**7.78**	**18**	**3.63**	**0.08**
Average Concentration *	**321**	**2,427**	**45**	**154**	**146**	**4**	**1,823**	**1.4**			**2**	**2.1**	**2.1**	**1.4**	**1.4**	**1.4**	**1.4**	**2.1**	**4.8**	**0.4**	**0.012**
Median Concentration *	**236**	**2,050**	**21**	**128**	**110**	**3.81**	**1,800**	**1**	**2.5**	**2.5**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**0.75**	**2.4**	**0.005**	**0.005**
Standard Deviation *	**260**	**2,017**	**54**	**119**	**116**	**2.2**	**1,345**	**0.75**			**0**	**0.25**	**0.25**	**0.75**	**0.75**	**0.75**	**0.75**	**2.9**	**5.4**	**1.1**	**0.019**
95% UCL (Student's-t) *	**431**	**3,281**	**67.57**	**204.8**	**194.9**	**4.907**	**2,393**	**2.258**			**2**	**2.419**	**2.419**	**2.258**	**2.258**	**2.258**	**2.258**	**3.334**	**7.13**	**0.857**	**0.0198**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**88**	**100**	**35**	**18**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**12**	**0**	**65**	**82**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							ients				Metals																
							Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene
							mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL							0.01	0.1	0.01	0.01	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1	0.001	0.05	1	0.05	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													5.5	0.0044	0.027	0.027		1.3		4.4		0.4	70		8	700	180
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries								0.3		0.005														0.03			
NEPM 2013 Table 1C GILs, Marine Waters													0.7	0.0044	0.027	0.027		1.3		4.4		0.1	7		15	500	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.01	0.3	<0.01	<0.01	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	0.17	<1	0.121	<0.1	8	-	9	<1	<2
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	<1	<0.1	<0.005	<0.005	-	<1	1	0.11	<1	0.18	<0.05	12	<0.05	14	<1	<1
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	<0.05	<1	0.118	<0.1	8	-	10	<1	<2
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.01	2.4	<0.10[#1]	<0.01	<0.01	1	<0.1	<0.01	-	<0.01	<1	2	1.40	<1	0.438	<0.1	1	-	10	<1	<2
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	3.65	12.6	0.04	<0.01	<0.01	4	<0.1	<0.01	-	<0.01	<1	1	0.53	<1	0.151	<0.1	6	-	14	<1	<2
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.01	5.6	<0.10[#1]	<0.01	0.78	9	<0.1	<0.01	-	<0.01	2	<1	969	<1	0.938	<0.1	30	-	151	<1	<2
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<0.01	0.3	0.06	<0.01	0.02	<1	<0.1	<0.01	-	<0.01	<1	2	0.08	<1	0.839	<0.1	12	-	33	<1	<2
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	2.86	3.3	0.07	0.02	0.75	4	<0.1	<0.01	-	<0.01	<1	<1	3.21	1	0.289	<0.1	26	-	63	<1	<2
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	0.02	18.0	3.00	<0.01	<0.01	<1	0.2	<0.01	-	<0.01	<1	1,630	10.5	<1	0.233	<0.1	9	-	15	<1	<2
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	0.06	0.5	0.02	<0.01	<0.01	<1	<0.1	<0.01	-	<0.01	<1	4	0.13	<1	0.027	<0.1	7	-	11	<1	<2
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.01	1.1	<0.01	<0.01	0.04	3	<0.1	<0.01	-	<0.01	<1	5	8.68	<1	1.03	<0.1	2	-	7	<1	<2
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<0.01	9.1	2.28	<0.01	0.05	2	<0.1	<0.01	-	<0.01	<1	<1	2.32	<1	0.483	<0.1	2	-	<5	<1	<2
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.01	0.3	0.02	<0.01	<0.01	2	<0.1	<0.01	-	<0.01	<1	<1	10.2	<1	0.454	<0.1	1	-	<5	<1	<2
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	0.02	13.3	1.24	<0.01	-	2	<0.1	<0.01	-	<0.01	2	<1	110	<1	1.85	<0.1	8	-	11	<1	<2
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	0.08	8.5	0.42	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	<1	21.9	<1	0.964	<0.1	<1	-	<5	<1	<2
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<0.01	1.0	0.05	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	<1	1.46	<1	0.439	<0.1	5	-	<5	<1	<2
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	0.09	0.3	0.04	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	16	<0.05	<1	0.082	<0.1	1	-	<5	<1	<2
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	0.02	-	-	<1	<0.1	<0.01	-	<0.01	<1	16	<0.05	<1	0.083	<0.1	<1	-	<5	<1	<2
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	<1	<0.1	<0.005	<0.005	-	<1	21	0.01	<1	0.1	<0.05	<1	<0.05	3	<1	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.01	4.1	0.34	<0.01	0.04	10	<0.1	<0.01	-	<0.01	<1	<1	7.59	<1	1.14	<0.1	13	-	24	<1	6
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.01	8.5	0.02	<0.01	<0.10[#1]	<10[#1]	<1.0[#1]	<0.01	-	<0.01	<10[#1]	<10[#1]	12.1	<10[#1]	0.408	<0.1	<10[#1]	-	<50[#1]	<1	<2
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	-	-	0.03	-	<0.10[#1]	<10[#1]	<1.0[#1]	-	-	-	<10[#1]	<10[#1]	12.6	<10[#1]	0.402	<0.1	<10[#1]	-	<50[#1]	<1	<2
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	-	-	-	-	0.01	4	<0.1	-	-	-	<1	1	15	<1	0.46	<0.05	2	<0.05	3	<1	<1

Statistics

Number of Results	**17**	**17**	**19**	**17**	**16**	**23**	**23**	**21**	**2**	**19**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**3**	**23**	**23**	**23**
Number of Detects	**7**	**17**	**15**	**1**	**7**	**10**	**1**	**0**	**0**	**0**	**2**	**11**	**20**	**1**	**23**	**0**	**18**	**0**	**15**	**0**	**1**
Minimum Concentration	**<0.01**	**0.3**	**<0.01**	**<0.01**	**0.01**	**1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**1**	**0.01**	**1**	**0.027**	**<0.05**	**1**	**<0.05**	**3**	**<1**	**<1**
Minimum Detect	**0.02**	**0.3**	**0.02**	**0.02**	**0.01**	**1**	**0.2**	**ND**	**ND**	**ND**	**2**	**1**	**0.01**	**1**	**0.027**	**ND**	**1**	**ND**	**3**	**ND**	**6**
Maximum Concentration	**3.65**	**18**	**3**	**0.02**	**0.78**	**10**	**<1**	**<0.01**	**<0.005**	**<0.01**	**<10**	**1,630**	**969**	**<10**	**1.85**	**<0.1**	**30**	**<0.05**	**151**	**<1**	**6**
Maximum Detect	**3.65**	**18**	**3**	**0.02**	**0.78**	**10**	**0.2**	**ND**	**ND**	**ND**	**2**	**1,630**	**969**	**1**	**1.85**	**ND**	**30**	**ND**	**151**	**ND**	**6**
Average Concentration *	**0.4**	**5.2**	**0.41**	**0.0059**	**0.11**	**2.5**	**0.096**	**0.0048**	**0.0025**	**0.005**	**1**	**75**	**52**	**0.91**	**0.49**	**0.047**	**7.2**	**0.025**	**19**	**0.5**	**1.2**
Median Concentration *	**0.005**	**3.3**	**0.05**	**0.005**	**0.015**	**1**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**1**	**2.32**	**0.5**	**0.408**	**0.05**	**5**	**0.025**	**10**	**0.5**	**1**
Standard Deviation *	**1.1**	**5.5**	**0.85**	**0.0036**	**0.25**	**2.7**	**0.13**	**0.00075**	**0**	**0**	**1.3**	**339**	**201**	**1.3**	**0.45**	**0.0086**	**7.7**	**0**	**32**	**0**	**1.1**
95% UCL (Student's-t) *	**0.86**	**7.582**	**0.745**	**0.00742**	**0.226**	**3.437**	**0.143**	**0.00504**	**0.0025**	**0.005**	**1.497**	**195.9**	**123.7**	**1.376**	**0.649**	**0.0498**	**9.91**	**0.025**	**30.69**	**0.5**	**1.536**
% of Detects	**41**	**100**	**79**	**6**	**44**	**43**	**4**	**0**	**0**	**0**	**9**	**48**	**87**	**4**	**100**	**0**	**78**	**0**	**65**	**0**	**4**
% of Non-Detects	**59**	**0**	**21**	**94**	**56**	**57**	**96**	**100**	**100**	**100**	**91**	**52**	**13**	**96**	**0**	**100**	**22**	**100**	**35**	**100**	**96**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	BTEX							TRH							MAH						
							Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	2	1	2	0.1	1	1	10	10	50	50	100	100	50	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							80				70	70											30				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters											50	50															
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	280	<100	280	<5	<5	<5	<5	<5	<5	<5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	260	260	<100	<100	230	<100	230	<5	<5	<5	<5	<5	<5	<5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	150	150	<100	<100	150	<5	<5	<5	<5	<5	<5	<5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	6	<20	<20	240	240	430	<100	670	<5	<5	<5	<5	<5	<5	<5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistic	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
Number of Results	**23**	**23**	**23**	**20**	**23**	**23**	**20**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**2**	**2**	**3**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<2**	**<1**	**<2**	**<0.1**	**<1**	**<1**	**<10**	**<10**	**<50**	**<50**	**<100**	**<100**	**<50**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**6**	**260**	**260**	**150**	**150**	**230**	**ND**	**150**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**6**	**260**	**260**	**240**	**240**	**430**	**<100**	**670**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**6**	**260**	**260**	**240**	**240**	**430**	**ND**	**670**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.93**	**1**	**0.93**	**1**	**0.44**	**2.2**	**0.78**	**20**	**20**	**59**	**59**	**84**	**50**	**96**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
Median Concentration *	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0.17**	**0**	**0.17**	**0**	**0.15**	**0.69**	**1.2**	**52**	**52**	**46**	**46**	**96**	**0**	**140**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**
95% UCL (Student's-t) *	**0.996**	**1**	**0.996**	**1**	**0.497**	**2.486**	**1.251**	**38.94**	**38.94**	**75.71**	**75.71**	**118.7**	**50**	**146.1**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**4**	**4**	**9**	**9**	**13**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**95**	**96**	**96**	**91**	**91**	**87**	**100**	**83**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							Halogenated Hydrocarbons																				
							Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	10	10	5	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)															270	400	1,900		700				1,900	900	1,100		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																	1,900										
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	**CZ5a/Shallow**	**CZ5_MW09**		**06 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
358929-1	**CZ5a/Shallow**	**QC02**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Interlab_D**	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2426006001	**CZ5a/Shallow**	**QC01**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Field_D**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006002	**CZ1/Shallow**	**CZ1_BH13_W**		**06 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006003	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**06 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006004	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**06 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006011	**Rosehill/Deep**	**SMW_ENV145_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426006013	**CZ3/Shallow**	**SMW_ENV039_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426147002	**CZ3/Shallow**	**GALC-MW18**		**08 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2426449007	**CZ1/Shallow**	**SMW_ENV226_S**		**12 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2427457001	**CZ3/Shallow**	**SMW_ENV009_W**		**19 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2427457003	**CZ3/Shallow**	**SMW_BH057_S**		**19 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2427457004	**CZ3/Shallow**	**QC05**	**SMW_BH057_S**	**19 Aug 2024**	**Water**	**Field_D**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
359802-1	**CZ3/Shallow**	**QC06**	**SMW_BH057_S**	**19 Aug 2024**	**Water**	**Interlab_D**	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2428614001	**CZ5a/Shallow**	**CZ5a_MW102**		**02 Sep 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2428614002	**CZ5a/Shallow**	**CZ5a_MW103**		**02 Sep 2024**	**Water**	**Normal**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
ES2428614003	**CZ5a/Shallow**	**QC100**	**ES2428614002**	**02 Sep 2024**	**Water**	**Field_D**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
360800-1	**CZ5a/Shallow**	**QC200**	**ES2428614002**	**02 Sep 2024**	**Water**	**Interlab_D**	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistics

Number of Results	**23**	**23**	**23**	**23**	**23**	**20**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<10**	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<50**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.2**	**2.2**	**2.2**	**22**	**22**	**2.5**	**22**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**0.5**
Median Concentration *	**2.5**	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**0.5**
Standard Deviation *	**0.69**	**0.69**	**0.69**	**6.9**	**6.9**	**0**	**6.9**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0.69**	**0**
95% UCL (Student's-t) *	**2.486**	**2.486**	**2.486**	**24.86**	**24.86**	**2.5**	**24.86**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**2.486**	**0.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							Chlorinated Hydrocarbons																					
							Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	10	1	10	1	1	1	1	5	2	1	1	1	1	10	4	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									240			770								330	70			100			80
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											20
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<10	-	<1	<1
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<50	-	<5	<5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	-	-	<1	<1	<1	<1	<10	-	<1	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<5	<2	<1	<1	<1	<1	<10	<4	<1	<1

Statistics

Number of Results	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**4**	**4**	**23**	**23**	**23**	**23**	**23**	**1**	**23**	**23**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**	**<5**	**<2**	**<1**	**<1**	**<1**	**<1**	**<10**	**<4**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<10**	**<2**	**<5**	**<5**	**<5**	**<5**	**<50**	**<4**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.2**	**2.2**	**2.2**	**2.2**	**22**	**2.2**	**22**	**2.2**	**2.2**	**2.2**	**2**	**4.4**	**1**	**2.2**	**2.2**	**2.2**	**2.2**	**22**		**2.2**	**2**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**5**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2**	**2.5**	**2.5**
Standard Deviation *	**0.69**	**0.69**	**0.69**	**0.69**	**6.9**	**0.69**	**6.9**	**0.69**	**0.69**	**0.69**	**0.8**	**1.2**	**0**	**0.69**	**0.69**	**0.69**	**0.69**	**6.9**		**0.69**	**0.8**
95% UCL (Student's-t) *	**2.486**	**2.486**	**2.486**	**2.486**	**24.86**	**2.486**	**24.86**	**2.486**	**2.486**	**2.486**	**2.329**	**5.846**	**1**	**2.486**	**2.486**	**2.486**	**2.486**	**24.86**		**2.486**	**2.329**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

	Halogenated Benzenes									VOCs											
	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	1	1	1	0.2	2	5	5	2	2	2	2	2	2	2	2	5	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							55	0.1	2			80									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters																					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D

Sample Code	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane
ES2426006005	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
358929-1	<1	<1	<1	<1	<1	<1	<1	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006002	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006003	<5	21	36	<5	<5	<5	296	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006004	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006009	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006010	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006011	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006012	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426006013	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426147001	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426147002	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2426449007	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2427457001	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2427457002	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2427457003	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
ES2427457004	<5	<5	<5	<5	<5	<5	<5	<0.5	-	<5	<5	<5	-	-	-	-	-	-	-	-	-
359802-1	<1	<1	<1	<1	<1	<1	<1	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	-	<2	<2	<2	<2	<2	<2	-	<2
ES2428614002	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	-	<2	<2	<2	<2	<2	<2	-	<2
ES2428614003	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	-	<2	<2	<2	<2	<2	<2	-	<2
360800-1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	-	-	<2	<2	-	<5	<5	<5	-	<5	<5	<5

Statistics

Statistic	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane
Number of Results	23	23	23	23	23	23	23	23	4	20	20	21	1	3	4	4	4	3	4	1	4
Number of Detects	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2
Minimum Detect	ND	21	36	ND	ND	ND	296	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	21	36	<5	<5	<5	296	<0.5	<2	<5	<5	<5	<2	<2	<5	<5	<5	<2	<5	<5	<5
Maximum Detect	ND	21	36	ND	ND	ND	296	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2	2.8	3.5	2.2	2.2	2.2	15	0.23	1	2.5	2.5	2.4		1	1.4	1.4	1.4	1	1.4		1.4
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	2.5	1
Standard Deviation *	0.8	4	7.1	0.69	0.69	0.69	61	0.052	0	0	0	0.33		0	0.75	0.75	0.75	0	0.75		0.75
95% UCL (Student's-t) *	2.329	4.293	6.052	2.486	2.486	2.486	36.93	0.249	1	2.5	2.5	2.552		1	2.258	2.258	2.258	1	2.258		2.258
% of Detects	0	4	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	96	96	100	100	100	96	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	SVOCs																				
							Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							2	5	2	2	10	2	2	2	4	2	0.0002	2	2	2	2	2	0.1	0.1	0.1	0.1	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																									0.4		0.2
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	<0.0002	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<5	<5	<5	<2	<10	<10	<5	<5	-	<5	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics

Statistics	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene
Number of Results	4	1	4	4	1	4	4	4	3	4	3	1	1	1	1	1	23	23	23	23	23
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<5	<2	<2	<10	<2	<2	<2	<4	<2	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<2	<10	<10	<5	<5	<4	<5	<0.0002	<2	<2	<2	<2	<2	<1	<1	<1	<1	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.4		1.4	1		2	1.4	1.4	2	1.4	0.0001						0.44	0.44	0.44	0.44	0.22
Median Concentration *	1	2.5	1	1	5	1	1	1	2	1	0.0001	1	1	1	1	1	0.5	0.5	0.5	0.5	0.25
Standard Deviation *	0.75		0.75	0		2	0.75	0.75	0	0.75	0						0.15	0.15	0.15	0.15	0.069
95% UCL (Student's-t) *	2.258		2.258	1		4.353	2.258	2.258	2	2.258	0.0001						0.497	0.497	0.497	0.497	0.249
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							PAH																	TPH				
							Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50	50	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												1.4			2												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	290	<50	290	-	-
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	260	50	270	<50	320	-	-
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	80	160	<50	240	-	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	180	420	60	660	-	<2
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	<2
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	<2
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	<2	<2

Statistics

Number of Results	**20**	**23**	**20**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**3**	**20**	**20**	**3**	**23**	**23**	**23**	**23**	**23**	**1**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**4**	**1**	**4**	**0**	**0**
Minimum Concentration	**<1**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**	**50**	**<100**	**<50**	**<50**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**260**	**50**	**160**	**60**	**240**	**ND**	**ND**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**260**	**180**	**420**	**<100**	**660**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**260**	**180**	**420**	**60**	**660**	**ND**	**ND**
Average Concentration *	**0.5**	**0.44**	**0.5**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**20**	**35**	**91**	**30**	**86**		**1**
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10**	**25**	**50**	**25**	**25**	**1**	**1**
Standard Deviation *	**0**	**0.15**	**0**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0**	**0**	**0**	**0**	**52**	**34**	**99**	**11**	**154**		**0**
95% UCL (Student's-t) *	**0.5**	**0.497**	**0.5**	**0.497**	**0.497**	**0.497**	**0.497**	**0.497**	**0.497**	**0.497**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**38.94**	**47.35**	**126.4**	**33.66**	**141.4**		**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**13**	**17**	**4**	**17**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**96**	**87**	**83**	**96**	**83**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

	Phenols															PCBs					
	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254
	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	2	0.0005	2	2	2	2	2	4	2	20	20	2	4	2	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														22	400						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters														11	400						

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	<2	<0.01	<2	<2	<2	<2	<2	142	<2	-	-	<2	<4	3	-	-	-	-	-	-
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<4	<2	-	-	-	-	-	-
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<4	<2	-	-	-	-	-	-
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<0.02	<2	<0.0005	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	<10	<2	<2	<2	<2	<2	<2	<2

Statistics

Statistics	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254
Number of Results	**1**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**1**	**1**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.02**	**<2**	**<0.0005**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<20**	**<20**	**<2**	**<4**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**142**	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**142**	**<2**	**<20**	**<20**	**<5**	**<10**	**3**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**142**	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *		**1**	**0.0038**	**1**	**1**	**1**	**1**	**1**	**37**	**1**			**1.4**	**2.8**	**1.5**	**1**	**1**	**1**	**1**	**1**	**1**
Median Concentration *	**0.01**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**10**	**10**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *		**0**	**0.0024**	**0**	**0**	**0**	**0**	**0**	**70**	**0**			**0.75**	**1.5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *		**1**	**0.00661**	**1**	**1**	**1**	**1**	**1**	**119.4**	**1**			**2.258**	**4.515**	**2.677**	**1**	**1**	**1**	**1**	**1**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**75**	**100**	**100**	**100**	**100**	**100**	**75**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
									Explosives																Organochlorine Pesticides		
							µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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							2	1	0.002	0.005	4	4	2	0.2	0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<2	-	-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<2	-	-	-	-	-	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<2	-	-	<0.005	-	<5	<5	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2

Statistics

Statistics	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
Number of Results	3	20	3	1	3	4	4	23	23	20	23	23	20	23	23	23	23	23	20	23	23
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<1	<0.002	<0.005	<4	<4	<2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<1	<0.002	<0.005	<4	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1	0.5	0.001		2	2.1	1.4	0.23	0.23	0.25	0.23	0.23	0.25	0.23	0.23	0.23	0.23	0.88	0.25	0.23	0.23
Median Concentration *	1	0.5	0.001	0.0025	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25
Standard Deviation *	0	0	0		0	0.25	0.75	0.052	0.052	0	0.052	0.052	0	0.052	0.052	0.052	0.052	0.31	0	0.052	0.052
95% UCL (Student's-t) *	1	0.5	0.001		2	2.419	2.258	0.249	0.249	0.25	0.249	0.249	0.25	0.249	0.249	0.249	0.249	0.994	0.25	0.249	0.249
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			0.008											0.009							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters			0.004											0.009							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2

Statistics

Statistics	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton
Number of Results	23	23	23	23	21	23	23	23	23	23	23	20	20	23	23	3	20	23	23	23	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.23	0.23	0.23	0.23	0.29	0.23	0.23	0.23	0.88	0.23	0.23	0.25	0.25	0.23	0.23	0.1	0.25	0.23	0.23	0.23	0.1
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.1	0.25	0.25	0.25	0.25	0.1
Standard Deviation *	0.052	0.052	0.052	0.052	0.16	0.052	0.052	0.052	0.31	0.052	0.052	0	0	0.052	0.052	0	0	0.052	0.052	0.052	0
95% UCL (Student's-t) *	0.249	0.249	0.249	0.249	0.347	0.249	0.249	0.249	0.994	0.249	0.249	0.25	0.25	0.249	0.249	0.1	0.25	0.249	0.249	0.249	0.1
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							ganophosphorous Pesticides														Pesticides						
							Ethyl methanesulfonate	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Cyromazine	Pirimphos-ethyl	Metribuzin	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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
EQL							5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5	0.2	5	2	2	0.05	0.5	2	0.0005	0.0005
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	-	-	-	<0.5	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	<0.05	<0.5	-	<0.01	<0.01
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	<0.05	<0.5	-	<0.01	<0.01
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	<0.05	<0.5	-	<0.01	<0.01
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<5	-	<5	-	-	<2	<0.0005	<0.0005

Statistics

Number of Results	**1**	**23**	**3**	**23**	**23**	**23**	**3**	**23**	**20**	**23**	**3**	**20**	**3**	**1**	**3**	**4**	**3**	**20**	**1**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<2**	**<0.05**	**<0.5**	**<2**	**<0.0005**	**<0.0005**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<2**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<5**	**<0.05**	**<0.5**	**<2**	**<0.01**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *		**0.23**	**0.1**	**0.23**	**0.23**	**0.23**	**0.1**	**0.88**	**1**	**0.88**	**0.1**	**0.25**	**0.1**		**1**	**1.4**	**0.025**	**0.25**		**0.0038**	**0.0038**
Median Concentration *	**2.5**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.1**	**1**	**1**	**1**	**0.1**	**0.25**	**0.1**	**2.5**	**1**	**1**	**0.025**	**0.25**	**1**	**0.005**	**0.005**
Standard Deviation *		**0.052**	**0**	**0.052**	**0.052**	**0.052**	**0**	**0.31**	**0**	**0.31**	**0**	**0**	**0**		**0**	**0.75**	**0**	**0**		**0.0024**	**0.0024**
95% UCL (Student's-t) *		**0.249**	**0.1**	**0.249**	**0.249**	**0.249**	**0.1**	**0.994**	**1**	**0.994**	**0.1**	**0.25**	**0.1**		**1**	**2.258**	**0.025**	**0.25**		**0.00661**	**0.00661**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							Herbicides																				
							Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	2-Chlorophenoxyacetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Cyanazine	Dicamba	Dinoseb	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine
							mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L
EQL							0.0005	0.0005	0.0005	0.5	0.0005	0.00001	0.002	0.00001	1	0.5	1	0.02	0.5	1	2	0.5	0.5	0.5	0.00001	2	0.00001
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																					
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.01	<0.01	<0.01	<10	-	<0.00001	-	<0.00001	-	-	-	<0.02	<10	-	-	<10	<10	<10	<0.00001	<2	<0.00001
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.01	<0.01	<0.01	<10	-	<0.00001	-	<0.00001	-	-	-	<0.02	<10	-	-	<10	<10	<10	<0.00001	<2	<0.00001
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<0.01	<0.01	<0.01	<10	-	<0.00001	-	<0.00001	-	-	-	<0.02	<10	-	-	<10	<10	<10	<0.00001	<2	<0.00001
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<2	<0.5	<1	<2	<0.5	<0.5	<0.5	<0.002	-	<0.002

Statistics

Statistics	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	2-Chlorophenoxyacetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Cyanazine	Dicamba	Dinoseb	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine
Number of Results	**4**	**4**	**4**	**4**	**1**	**4**	**1**	**4**	**1**	**1**	**1**	**4**	**4**	**1**	**1**	**4**	**4**	**4**	**4**	**3**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.0005**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0005**	**<0.00001**	**<0.002**	**<0.00001**	**<1**	**<0.5**	**<1**	**<0.02**	**<0.5**	**<1**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.00001**	**<2**	**<0.00001**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.01**	**<0.01**	**<0.01**	**<10**	**<0.0005**	**<0.002**	**<0.002**	**<0.002**	**<1**	**<0.5**	**<1**	**<2**	**<10**	**<1**	**<2**	**<10**	**<10**	**<10**	**<0.002**	**<2**	**<0.002**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.0038**	**0.0038**	**0.0038**	**3.8**		**0.00025**		**0.00025**				**0.26**	**3.8**			**3.8**	**3.8**	**3.8**	**0.00025**	**1**	**0.00025**
Median Concentration *	**0.005**	**0.005**	**0.005**	**5**	**0.00025**	**0.000005**	**0.001**	**0.000005**	**0.5**	**0.25**	**0.5**	**0.01**	**5**	**0.5**	**1**	**5**	**5**	**5**	**0.000005**	**1**	**0.000005**
Standard Deviation *	**0.0024**	**0.0024**	**0.0024**	**2.4**		**0.0005**		**0.0005**				**0.5**	**2.4**			**2.4**	**2.4**	**2.4**	**0.0005**	**0**	**0.0005**
95% UCL (Student's-t) *	**0.00661**	**0.00661**	**0.00661**	**6.607**		**0.00083915**		**0.00083915**				**0.84**	**6.607**			**6.607**	**6.607**	**6.607**	**0.00083915**	**1**	**0.00083915**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

			Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals			Nitroaromatics		
	Simazine	Terbutryn	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene
	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.00002	0.00001	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05	0.01	0.01	0.01	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%					0.13						220										
PFAS NEMP 2020 Interim Marine 99%					0.00023						19										
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters																					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Simazine	Terbutryn	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	0.15	0.14	<0.01	0.14	<0.1	<0.02	0.06	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.35	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	0.16	<0.01	0.16	-	-	-	-	<0.01	-	<0.01	<0.02	-	-	<0.01	0.16	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	0.15	0.16	<0.01	0.16	<0.1	<0.02	0.06	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.37	-	-	-	-	-
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	-	0.50	1.33	0.56	1.89	0.1	0.08	0.40	0.06	0.08	<0.05	<0.05	<0.05	<0.05	3.11	-	-	-	-	-
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	-	0.07	0.04	0.02	0.06	<0.1	0.02	0.03	<0.02	0.02	<0.05	<0.05	<0.05	<0.05	0.20	-	-	-	-	-
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	-	0.02	0.04	0.01	0.05	<0.1	<0.02	<0.02	<0.02	0.01	<0.05	<0.05	<0.05	<0.05	0.08	-	-	-	-	-
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	-	0.02	0.02	<0.01	0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.04	-	-	-	-	-
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	-	<0.02	0.05	<0.01	0.05	<0.1	0.03	<0.02	<0.02	0.01	<0.05	<0.05	<0.05	<0.05	0.09	-	-	-	-	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	0.07	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.07	-	-	-	-	-
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	<0.02	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.03	-	-	-	-	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	<0.02	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.03	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	0.01	0.02	0.03	-	-	-	-	<0.01	-	<0.01	<0.02	-	-	0.02	0.03	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.00002	<0.00001	<0.02	<0.01	0.02	0.02	<0.1	0.06	0.04	<0.02	0.01	<0.05	<0.05	<0.05	<0.05	0.13	-	-	<2	<2	<2
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.00002	<0.00001	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<0.00002	<0.00001	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<0.002	<0.002	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-	-	<0.01	<0.01	-	-	<5

Statistics

Statistics	Simazine	Terbutryn	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene
Number of Results	**4**	**4**	**20**	**23**	**23**	**23**	**20**	**20**	**20**	**20**	**23**	**20**	**23**	**23**	**20**	**20**	**3**	**3**	**3**	**3**	**4**
Number of Detects	**0**	**0**	**7**	**11**	**7**	**12**	**1**	**4**	**5**	**1**	**5**	**0**	**0**	**0**	**0**	**11**	**1**	**2**	**0**	**0**	**0**
Minimum Concentration	**<0.00002**	**<0.00001**	**0.02**	**0.01**	**0.01**	**<0.01**	**0.1**	**0.02**	**<0.02**	**<0.02**	**0.01**	**<0.05**	**<0.01**	**<0.02**	**<0.05**	**<0.01**	**<0.01**	**<0.01**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**0.02**	**0.01**	**0.01**	**0.02**	**0.1**	**0.02**	**0.03**	**0.06**	**0.01**	**ND**	**ND**	**ND**	**ND**	**0.03**	**0.02**	**0.03**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.002**	**<0.002**	**0.5**	**1.33**	**0.56**	**1.89**	**0.1**	**0.08**	**0.4**	**0.06**	**0.08**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**3.11**	**0.02**	**0.16**	**<2**	**<2**	**<5**
Maximum Detect	**ND**	**ND**	**0.5**	**1.33**	**0.56**	**1.89**	**0.1**	**0.08**	**0.4**	**0.06**	**0.08**	**ND**	**ND**	**ND**	**ND**	**3.11**	**0.02**	**0.16**	**ND**	**ND**	**ND**
Average Concentration *	**0.00026**	**0.00025**	**0.056**	**0.088**	**0.033**	**0.12**	**0.053**	**0.018**	**0.037**	**0.013**	**0.0096**	**0.025**	**0.022**	**0.023**	**0.025**	**0.23**	**0.01**	**0.065**	**1**	**1**	**1.4**
Median Concentration *	**0.00001**	**0.000005**	**0.01**	**0.005**	**0.005**	**0.02**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.03**	**0.005**	**0.03**	**1**	**1**	**1**
Standard Deviation *	**0.0005**	**0.0005**	**0.11**	**0.28**	**0.12**	**0.39**	**0.011**	**0.019**	**0.087**	**0.011**	**0.016**	**0**	**0.0069**	**0.0052**	**0**	**0.69**	**0.0087**	**0.083**	**0**	**0**	**0.75**
95% UCL (Student's-t) *	**0.00083996**	**0.00083915**	**0.0994**	**0.187**	**0.0738**	**0.257**	**0.0568**	**0.0248**	**0.0706**	**0.0168**	**0.0152**	**0.025**	**0.0249**	**0.0249**	**0.025**	**0.493**	**0.0246**	**0.205**	**1**	**1**	**2.258**
% of Detects	**0**	**0**	**35**	**48**	**30**	**52**	**5**	**20**	**25**	**5**	**22**	**0**	**0**	**0**	**0**	**55**	**33**	**67**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**65**	**52**	**70**	**48**	**95**	**80**	**75**	**95**	**78**	**100**	**100**	**100**	**100**	**45**	**67**	**33**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T1. Groundwater Analytical Results –Marine Guideline Criteria (Generic)

							Organic	Other			Phthalates							Solvents						
							Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
							mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL							0.00001	0.0005	2	0.001	10	2	50	2	2	2	2	50	50	50	5	0.001	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																								
PFAS NEMP 2020 Interim Marine 95%																								
PFAS NEMP 2020 Interim Marine 99%																								
ANZECC 2000 SE Aust - Estuaries																								
NEPM 2013 Table 1C GILs, Marine Waters																								
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**																		
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<5	-	-	<50
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.00001	-	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.00001	-	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2428614003	CZ5a/Shallow	QC100	ES2428614002	02 Sep 2024	Water	Field_D	<0.00001	-	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
360800-1	CZ5a/Shallow	QC200	ES2428614002	02 Sep 2024	Water	Interlab_D	<0.002	<0.0005	<5	<0.001	-	<10	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-

Statistics

	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
Number of Results	4	1	4	1	3	4	1	4	4	4	4	20	20	20	20	3	4	20
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.00001	<0.0005	<2	<0.001	<10	<2	<50	<2	<2	<2	<2	<50	<50	<50	<5	<0.001	<2	<50
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.002	<0.0005	<5	<0.001	<10	<10	<50	<10	<10	<50	<50	<50	<50	<50	<5	<0.001	<5	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.00025		1.4		5	2		2	2	7	7	25	25	25	2.5	0.0005	1.4	25
Median Concentration *	0.000005	0.00025	1	0.0005	5	1	25	1	1	1	1	25	25	25	2.5	0.0005	1	25
Standard Deviation *	0.0005		0.75		0	2		2	2	12	12	0	0	0	0	0	0.75	0
95% UCL (Student's-t) *	0.00083915		2.258		5	4.353		4.353	4.353	21.12	21.12	25	25	25	2.5	0.0005	2.258	25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Physico-Chemic									
	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River			6.5-8							
NEPM 2013 Table 1C GILs, Fresh Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	203	6.19	6.55	484	6.2	321	45	55	<1	<1
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	185	6.75	7.41	20,000	6.4	13,100	6,500	346	<1	<1
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	39.5	6.85	7.51	13,300	5.0	8,080	4,240	241	<1	<1
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	198	6.74	7.24	527	8.6	342	46	79	<1	<1
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	126	5.96	6.61	959	7.6	626	166	203	<1	<1
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-

Statistics

Statistics	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**0**	**0**
Minimum Concentration	**39.5**	**5.96**	**6.55**	**484**	**5**	**321**	**45**	**55**	**<1**	**<1**
Minimum Detect	**39.5**	**5.96**	**6.55**	**484**	**5**	**321**	**45**	**55**	**ND**	**ND**
Maximum Concentration	**203**	**6.85**	**7.51**	**20,000**	**8.6**	**13,100**	**6,500**	**346**	**<1**	**<1**
Maximum Detect	**203**	**6.85**	**7.51**	**20,000**	**8.6**	**13,100**	**6,500**	**346**	**ND**	**ND**
Average Concentration *	**150**	**6.5**	**7.1**	**7,054**	**6.8**	**4,494**	**2,199**	**185**	**0.5**	**0.5**
Median Concentration *	**185**	**6.74**	**7.24**	**959**	**6.4**	**626**	**166**	**203**	**0.5**	**0.5**
Standard Deviation *	**69**	**0.4**	**0.45**	**9,076**	**1.4**	**5,842**	**3,003**	**120**	**0**	**0**
95% UCL (Student's-t) *	**216.2**	**6.876**	**7.496**	**15,707**	**8.077**	**10,064**	**5,062**	**299.1**	**0.5**	**0.5**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							al & Major Ions									
							Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L
EQL							1	1	1	1	1	1	0.01	0.01	0.01	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	68	68	9	12	73	4	4.50	4.71	2.29	72
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	1,160	1,160	222	515	3,550	64	214	210	1.00	2,680
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	1,210	1,210	183	363	1,890	44	149	122	9.76	1,950
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	91	91	4	5	106	<1	4.76	5.22	4.62	30
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	42	42	13	11	106	6	9.75	6.32	21.3	78
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**5**	**5**	**5**	**5**	**5**	**4**	**5**	**5**	**5**	**5**
Minimum Concentration	**42**	**42**	**4**	**5**	**73**	**<1**	**4.5**	**4.71**	**1**	**30**
Minimum Detect	**42**	**42**	**4**	**5**	**73**	**4**	**4.5**	**4.71**	**1**	**30**
Maximum Concentration	**1,210**	**1,210**	**222**	**515**	**3,550**	**64**	**214**	**210**	**21.3**	**2,680**
Maximum Detect	**1,210**	**1,210**	**222**	**515**	**3,550**	**64**	**214**	**210**	**21.3**	**2,680**
Average Concentration *	**514**	**514**	**86**	**181**	**1,145**	**24**	**76**	**70**	**7.8**	**962**
Median Concentration *	**91**	**91**	**13**	**12**	**106**	**6**	**9.75**	**6.32**	**4.62**	**78**
Standard Deviation *	**613**	**613**	**107**	**241**	**1,553**	**29**	**99**	**93**	**8.3**	**1,262**
95% UCL (Student's-t) *	**1,098**	**1,098**	**188.3**	**411.4**	**2,626**	**50.98**	**170.5**	**158.6**	**15.67**	**2,165**
% of Detects	**100**	**100**	**100**	**100**	**100**	**80**	**100**	**100**	**100**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Nutrients									
							Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L
EQL							0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.9								0.055	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species									2.4							
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River												0.5		0.02		
NEPM 2013 Table 1C GILs, Fresh Waters															*0.055 | 0.055*	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.01	1.4	10.1	0.12	10.2	11.6	0.02	0.02	<0.01	<1
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	2.74	5.1	0.49	0.07	0.56	5.7	0.47	0.01	0.05	<1
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	0.85	1.9	0.08	<0.01	0.08	2.0	0.04	<0.01	*0.18*	<1
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.01	0.7	3.10	<0.01	3.10	3.8	0.01	<0.01	-	<1
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	0.04	0.8	0.11	<0.01	0.11	0.9	0.40	<0.01	-	<1
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	-	-	-	-	-	-	-	-	-	1
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	-	-	-	1

Statistics

	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)
Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**3**	**7**
Number of Detects	**3**	**5**	**5**	**2**	**5**	**5**	**5**	**2**	**2**	**2**
Minimum Concentration	**<0.01**	**0.7**	**0.08**	**<0.01**	**0.08**	**0.9**	**0.01**	**0.01**	**<0.01**	**1**
Minimum Detect	**0.04**	**0.7**	**0.08**	**0.07**	**0.08**	**0.9**	**0.01**	**0.01**	**0.05**	**1**
Maximum Concentration	**2.74**	**5.1**	**10.1**	**0.12**	**10.2**	**11.6**	**0.47**	**0.02**	**0.18**	**1**
Maximum Detect	**2.74**	**5.1**	**10.1**	**0.12**	**10.2**	**11.6**	**0.47**	**0.02**	**0.18**	**1**
Average Concentration *	**0.73**	**2**	**2.8**	**0.041**	**2.8**	**4.8**	**0.19**	**0.009**	**0.078**	**0.64**
Median Concentration *	**0.04**	**1.4**	**0.49**	**0.005**	**0.56**	**3.8**	**0.04**	**0.005**	**0.05**	**0.5**
Standard Deviation *	**1.2**	**1.8**	**4.3**	**0.052**	**4.3**	**4.2**	**0.23**	**0.0065**	**0.091**	**0.24**
95% UCL (Student's-t) *	**1.854**	**3.706**	**6.859**	**0.0909**	**6.925**	**8.82**	**0.405**	**0.0152**	**0.232**	**0.822**
% of Detects	**60**	**100**	**100**	**40**	**100**	**100**	**100**	**40**	**67**	**29**
% of Non-Detects	**40**	**0**	**0**	**60**	**0**	**0**	**0**	**60**	**33**	**71**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

							Metals									
							Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)
							µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L
EQL							0.1	0.005	0.005	0.005	1	1	0.01	1	0.001	0.05
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.2	0.001				1.4		3.4	1.9	0.6
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters							*0.2*	*0.001*				*1.4*		*3.4*	*1.9*	*0.06*
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.1	<0.01	-	<0.01	<1	*58*	<0.05	<1	0.083	<0.1
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.1	<0.01	-	<0.01	<1	*2*	0.07	<1	0.098	<0.1
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.1	<0.01	-	<0.01	<1	*4*	2.26	<1	0.173	<0.1
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.1	<0.01	-	<0.01	<1	*74*	<0.05	<1	0.002	<0.1
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<0.1	<0.01	-	<0.01	<1	<1	0.97	<1	0.020	<0.1
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<0.1	<0.01	-	<0.01	<1	*2*	1.16	1	0.020	<0.1
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<0.1	<0.005	<0.005	-	1	*4*	1.6	2	0.027	<0.05

Statistics

Number of Results	**7**	**7**	**1**	**6**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**1**	**6**	**5**	**2**	**7**	**0**
Minimum Concentration	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**1**	**<1**	**<0.05**	**1**	**0.002**	**<0.05**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**1**	**2**	**0.07**	**1**	**0.002**	**ND**
Maximum Concentration	**<0.1**	**<0.01**	**<0.005**	**<0.01**	**1**	**74**	**2.26**	**2**	**0.173**	**<0.1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**1**	**74**	**2.26**	**2**	**0.173**	**ND**
Average Concentration *	**0.05**	**0.0046**		**0.005**	**0.57**	**21**	**0.87**	**0.79**	**0.06**	**0.046**
Median Concentration *	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**4**	**0.97**	**0.5**	**0.027**	**0.05**
Standard Deviation *	**0**	**0.00094**		**0**	**0.19**	**31**	**0.88**	**0.57**	**0.061**	**0.0094**
95% UCL (Student's-t) *	**0.05**	**0.00534**		**0.005**	**0.71**	**43.67**	**1.518**	**1.202**	**0.105**	**0.0534**
% of Detects	**0**	**0**	**0**	**0**	**14**	**86**	**71**	**29**	**100**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**86**	**14**	**29**	**71**	**0**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

				BTEX						
	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.05	1	1	1	1	2	1	2	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	11		8	950	180	80		350		16
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River		0.05								
NEPM 2013 Table 1C GILs, Fresh Waters	*11*		*8*	*950*				*350*	*550*	*16*

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	2	-	*14*	<1	<2	<2	<2	<2	<2	<1.0
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	1	-	<5	<1	<2	<2	<2	<2	<2	<1.0
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	2	-	<5	<1	<2	<2	<2	<2	<2	<1.0
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<1	-	*9*	<1	<2	<2	<2	<2	<2	<1.0
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	3	-	5	<1	<2	<2	<2	<2	<2	2.4
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	3	-	*10*	<1	<2	<2	<2	<2	<2	1.8
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	3	<0.05	*13*	<1	<1	<1	<2	<1	-	<0.1

Statistics

Statistics	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
Number of Results	**7**	**1**	**7**	**7**	**7**	**7**	**7**	**7**	**6**	**7**
Number of Detects	**6**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Minimum Concentration	**1**	**<0.05**	**5**	**<1**	**<1**	**<1**	**<2**	**<1**	**<2**	**<0.1**
Minimum Detect	**1**	**ND**	**5**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**1.8**
Maximum Concentration	**3**	**<0.05**	**14**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**2.4**
Maximum Detect	**3**	**ND**	**14**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.4**
Average Concentration *	**2.1**		**8**	**0.5**	**0.93**	**0.93**	**1**	**0.93**	**1**	**0.89**
Median Concentration *	**2**	**0.025**	**9**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Standard Deviation *	**1**		**4.8**	**0**	**0.19**	**0.19**	**0**	**0.19**	**0**	**0.86**
95% UCL (Student's-t) *	**2.819**		**11.49**	**0.5**	**1.067**	**1.067**	**1**	**1.067**	**1**	**1.523**
% of Detects	**86**	**0**	**71**	**0**	**0**	**0**	**0**	**0**	**0**	**29**
% of Non-Detects	**14**	**100**	**29**	**100**	**100**	**100**	**100**	**100**	**100**	**71**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Naphthalene (BTEX)	Total BTEX	TRH C6-C10	TRH C6-C10 (F1 minus BTEX)	TRH C10-C16	TRH C10-C16 (F2 minus Naphthalene)	TRH C16-C34	TRH C34-C40	TRH C10-C40 (Sum of total)	1,2,4-trimethylbenzene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	1	10	10	50	50	100	100	50	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							16									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters							*16*									

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<1	<20	<20	<100	<100	500	100	600	<5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	-	<10	<10	<50	<50	<100	<100	<50	<1

Statistics

Statistics	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene
Number of Results	**7**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**
Minimum Concentration	**<1**	**<1**	**<10**	**<10**	**<50**	**<50**	**<100**	**100**	**<50**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**500**	**100**	**600**	**ND**
Maximum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**500**	**100**	**600**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**500**	**100**	**600**	**ND**
Average Concentration *	**2.2**	**0.5**	**9.3**	**9.3**	**46**	**46**	**114**	**57**	**125**	**2.2**
Median Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**
Standard Deviation *	**0.76**	**0**	**1.9**	**1.9**	**9.4**	**9.4**	**170**	**19**	**210**	**0.76**
95% UCL (Student's-t) *	**2.769**	**0.5**	**10.67**	**10.67**	**53.37**	**53.37**	**239.2**	**71.02**	**279**	**2.769**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**14**	**14**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**86**	**86**	**86**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

	MAH								Haloge	
	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	1	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		30								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10

Statistics

Statistics	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
Number of Results	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**22**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Standard Deviation *	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**7.6**
95% UCL (Student's-t) *	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**27.69**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	nated Hydrocarbons									
	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	5	10	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					270	400	6,500		700	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters							*6,500*			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<10	-	<10	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistics	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene
Number of Results	**7**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**22**	**2.5**	**22**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
Median Concentration *	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**7.6**	**0**	**7.6**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**
95% UCL (Student's-t) *	**27.69**	**2.5**	**27.69**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Chlorinated Hydrocarbons									
							1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	1	1	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)									1,900	900	1,100					240
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	-	<5	<5	<5
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	-	<5	<5	<5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	-	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	-	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	-	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	-	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistics

	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride
Number of Results	7	7	7	7	7	7	1	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<1	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2	2.2	2.2	2.2	2.2	2.2		2.2	2.2	2.2
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	0.5	2.5	2.5	2.5
Standard Deviation *	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76
95% UCL (Student's-t) *	2.769	2.769	2.769	2.769	2.769	2.769		2.769	2.769	2.769
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	10	1	10	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			770						330	70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1

Statistics

Statistics	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene
Number of Results	7	7	7	7	7	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2	22	2.2	22	2.2	2.2	2.2	2.2	2.2	2.2
Median Concentration *	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0.76	7.6	0.76	7.6	0.76	0.76	0.76	0.76	0.76	0.76
95% UCL (Student's-t) *	2.769	27.69	2.769	27.69	2.769	2.769	2.769	2.769	2.769	2.769
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

										Halogenated Benzenes						
							trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	1	10	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)									100	10	170	160	260	60		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters										*3*	*85*	*160*	*260*	*60*		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1
Statistics																
Number of Results							**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<1**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**2.2**	**2.2**	**22**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
Median Concentration *							**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *							**0.76**	**0.76**	**7.6**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**
95% UCL (Student's-t) *							**2.769**	**2.769**	**27.69**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							VOCs									
							Bromobenzene	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL							1	1	0.2	5	5	5	0.0002	0.1	0.1	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								55	0.1			80				0.4
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<0.2	-	-	-	<0.0002	<0.1	<0.1	<0.1

Statistics

Number of Results	**7**	**7**	**7**	**6**	**6**	**6**	**1**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<0.2**	**<5**	**<5**	**<5**	**<0.0002**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<0.5**	**<5**	**<5**	**<5**	**<0.0002**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.2**	**2.2**	**0.23**	**2.5**	**2.5**	**2.5**		**0.44**	**0.44**	**0.44**
Median Concentration *	**2.5**	**2.5**	**0.25**	**2.5**	**2.5**	**2.5**	**0.0001**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0.76**	**0.76**	**0.057**	**0**	**0**	**0**		**0.17**	**0.17**	**0.17**
95% UCL (Student's-t) *	**2.769**	**2.769**	**0.27**	**2.5**	**2.5**	**2.5**		**0.561**	**0.561**	**0.561**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

							PAH									
							Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	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
EQL							0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								0.2						1.4		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics

Number of Results	**7**	**7**	**6**	**7**	**6**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.44**	**0.22**	**0.5**	**0.44**	**0.5**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**
Median Concentration *	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0.17**	**0.076**	**0**	**0.17**	**0**	**0.17**	**0.17**	**0.17**	**0.17**	**0.17**
95% UCL (Student's-t) *	**0.561**	**0.277**	**0.5**	**0.561**	**0.5**	**0.561**	**0.561**	**0.561**	**0.561**	**0.561**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36
	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	2									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	270	260
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	2.4	-	<20	<50	<100	<50
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<1.0	<1.0	-	<0.0005	1.8	-	<20	<50	<100	<50
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100

Statistics

Statistic	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36
Number of Results	**7**	**7**	**1**	**6**	**6**	**1**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**
Minimum Concentration	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**	**<50**	**<100**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**1.8**	**ND**	**ND**	**ND**	**270**	**260**
Maximum Concentration	**<1**	**<1**	**<0.0005**	**<0.0005**	**2.4**	**<0.0001**	**<20**	**<50**	**270**	**260**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**2.4**	**ND**	**ND**	**ND**	**270**	**260**
Average Concentration *	**0.44**	**0.44**		**0.00025**	**0.87**		**9.3**	**25**	**81**	**62**
Median Concentration *	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10**	**25**	**50**	**25**
Standard Deviation *	**0.17**	**0.17**		**0**	**0.97**		**1.9**	**0**	**83**	**88**
95% UCL (Student's-t) *	**0.561**	**0.561**		**0.00025**	**1.668**		**10.67**	**25**	**142.5**	**126.6**
% of Detects	**0**	**0**	**0**	**0**	**33**	**0**	**0**	**0**	**14**	**14**
% of Non-Detects	**100**	**100**	**100**	**100**	**67**	**100**	**100**	**100**	**86**	**86**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							C10-C36 (Sum of total)	PCBs								4,4-DDE
								Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							50	2	2	2	2	2	2	2	1	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											0.6		0.03			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters											*0.3*		*0.01*			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<50	-	-	-	-	-	-	-	<1	<0.5
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	530	-	-	-	-	-	-	-	<1	<0.5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<50	-	-	-	-	-	-	-	<1	<0.5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<50	-	-	-	-	-	-	-	<1	<0.5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<50	-	-	-	-	-	-	-	<1	<0.5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<50	-	-	-	-	-	-	-	<1	<0.5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<50	<2	<2	<2	<2	<2	<2	<2	-	<0.2

Statistics

Number of Results	**7**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**6**	**7**
Number of Detects	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<0.2**
Minimum Detect	**530**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**530**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<0.5**
Maximum Detect	**530**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**97**								**0.5**	**0.23**
Median Concentration *	**25**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0.5**	**0.25**
Standard Deviation *	**191**								**0**	**0.057**
95% UCL (Student's-t) *	**237.3**								**0.5**	**0.27**
% of Detects	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**86**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Organ									
							a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											0.08					0.01
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters											*0.03*					*0.006*
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2

Statistics

	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT
Number of Results	**7**	**6**	**7**	**7**	**6**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.23**	**0.25**	**0.23**	**0.23**	**0.25**	**0.23**	**0.23**	**0.23**	**0.23**	**0.87**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**
Standard Deviation *	**0.057**	**0**	**0.057**	**0.057**	**0**	**0.057**	**0.057**	**0.057**	**0.057**	**0.34**
95% UCL (Student's-t) *	**0.27**	**0.25**	**0.27**	**0.27**	**0.25**	**0.27**	**0.27**	**0.27**	**0.27**	**1.121**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							ochlorine Pesticides									
							DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)												0.02			0.2	0.09
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters												*0.01*			*0.2*	*0.01*
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2

Statistics

Number of Results	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**6**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**	**0.25**	**0.23**	**0.23**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0.057**	**0.057**	**0.057**	**0.057**	**0.057**	**0.057**	**0**	**0.057**	**0.057**
95% UCL (Student's-t) *	**0.25**	**0.27**	**0.27**	**0.27**	**0.27**	**0.27**	**0.27**	**0.25**	**0.27**	**0.27**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			0.02				0.01			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										
PFAS NEMP 2020 Freshwater 99%										
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters							*0.01*			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-

Statistics

Statistics	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl
Number of Results	**7**	**7**	**7**	**7**	**6**	**6**	**7**	**7**	**1**	**6**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.23**	**0.87**	**0.23**	**0.23**	**0.25**	**0.25**	**0.23**	**0.23**		**0.25**
Median Concentration *	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**
Standard Deviation *	**0.057**	**0.34**	**0.057**	**0.057**	**0**	**0**	**0.057**	**0.057**		**0**
95% UCL (Student's-t) *	**0.27**	**1.121**	**0.27**	**0.27**	**0.25**	**0.25**	**0.27**	**0.27**		**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

							Organophosphorous Pesticides									
							Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.01		0.15			0.2			0.05	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters							*0.01*		*0.15*			*0.2*			*0.05*	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Statistics

Number of Results	**7**	**7**	**7**	**1**	**7**	**1**	**7**	**7**	**7**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.23**	**0.23**	**0.23**		**0.23**		**0.23**	**0.23**	**0.23**	
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.1**
Standard Deviation *	**0.057**	**0.057**	**0.057**		**0.057**		**0.057**	**0.057**	**0.057**	
95% UCL (Student's-t) *	**0.27**	**0.27**	**0.27**		**0.27**		**0.27**	**0.27**	**0.27**	
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)
							Pesticides	Perfluoroalkyl Sulfonic Aci		
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	2	0.2	0.2	0.5	0.2	0.5	0.02	0.01	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			0.004							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%										0.13
PFAS NEMP 2020 Freshwater 99%										0.00023
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters			*0.004*							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Pirimphos-ethyl	PFBS	PFHxS	PFOS
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<2.0	<2.0	<2.0	-	<0.5	-	<0.5	<0.02	0.01	0.03
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<2.0	<2.0	<2.0	-	<0.5	-	<0.5	<0.02	<0.01	<0.01
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<2.0	<2.0	<2.0	-	<0.5	-	<0.5	<0.02	<0.01	<0.01
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<2.0	<2.0	<2.0	-	<0.5	-	<0.5	0.07	0.17	0.22
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<2.0	<2.0	<2.0	-	<0.5	-	<0.5	<0.02	0.02	0.03
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<2.0	<2.0	<2.0	-	<0.5	-	<0.5	<0.02	0.02	0.03
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.2	-	<0.2	<0.2	-	<0.2	-	-	0.01	0.02

Statistics

Statistics	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Pirimphos-ethyl	PFBS	PFHxS	PFOS
Number of Results	7	6	7	1	6	1	6	6	7	7
Number of Detects	0	0	0	0	0	0	0	1	5	5
Minimum Concentration	<0.2	<2	<0.2	<0.2	<0.5	<0.2	<0.5	<0.02	0.01	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	0.07	0.01	0.02
Maximum Concentration	<2	<2	<2	<0.2	<0.5	<0.2	<0.5	0.07	0.17	0.22
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	0.07	0.17	0.22
Average Concentration *	0.87	1	0.87		0.25		0.25	0.02	0.034	0.049
Median Concentration *	1	1	1	0.1	0.25	0.1	0.25	0.01	0.01	0.03
Standard Deviation *	0.34	0	0.34		0		0	0.024	0.06	0.076
95% UCL (Student's-t) *	1.121	1	1.121		0.25		0.25	0.0402	0.0785	0.105
% of Detects	0	0	0	0	0	0	0	17	71	71
% of Non-Detects	100	100	100	100	100	100	100	83	29	29

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T2. Groundwater Analytical Results –Freshwater Guideline Criteria (Generic)

	s	Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids			
	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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
EQL	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Freshwater 95%						220				
PFAS NEMP 2020 Freshwater 99%						19				
ANZECC 2000 SE Aust - Lowland River										
NEPM 2013 Table 1C GILs, Fresh Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	0.04	<0.1	<0.02	<0.02	<0.02	0.03	<0.05	<0.05	<0.05	<0.05
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	0.39	<0.1	0.14	0.14	0.07	0.11	<0.05	<0.05	<0.05	<0.05
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	0.05	<0.1	0.13	0.09	0.03	0.07	<0.05	<0.05	<0.05	<0.05
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	0.05	<0.1	0.14	0.12	0.03	0.07	<0.05	<0.05	<0.05	<0.05
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	0.04	-	-	-	-	0.08	-	<0.01	<0.02	-

Statistics

Statistics	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS
Number of Results	**7**	**6**	**6**	**6**	**6**	**7**	**6**	**7**	**7**	**6**
Number of Detects	**5**	**0**	**3**	**3**	**3**	**5**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**	**<0.01**	**<0.02**	**<0.05**
Minimum Detect	**0.04**	**ND**	**0.13**	**0.09**	**0.03**	**0.03**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**0.39**	**<0.1**	**0.14**	**0.14**	**0.07**	**0.11**	**<0.05**	**<0.05**	**<0.05**	**<0.05**
Maximum Detect	**0.39**	**ND**	**0.14**	**0.14**	**0.07**	**0.11**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.083**	**0.05**	**0.073**	**0.063**	**0.027**	**0.053**	**0.025**	**0.022**	**0.023**	**0.025**
Median Concentration *	**0.04**	**0.05**	**0.07**	**0.05**	**0.02**	**0.07**	**0.025**	**0.025**	**0.025**	**0.025**
Standard Deviation *	**0.14**	**0**	**0.069**	**0.061**	**0.023**	**0.04**	**0**	**0.0076**	**0.0057**	**0**
95% UCL (Student's-t) *	**0.183**	**0.05**	**0.13**	**0.113**	**0.0459**	**0.0824**	**0.025**	**0.0277**	**0.027**	**0.025**
% of Detects	**71**	**0**	**50**	**50**	**50**	**71**	**0**	**0**	**0**	**0**
% of Non-Detects	**29**	**100**	**50**	**50**	**50**	**29**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							PFAS Totals			Solvents					
							Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L
EQL							0.01	0.01	0.01	50	50	50	5	0.001	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)															
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species															
PFAS NEMP 2020 Freshwater 95%															
PFAS NEMP 2020 Freshwater 99%															
ANZECC 2000 SE Aust - Lowland River															
NEPM 2013 Table 1C GILs, Fresh Waters															
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**									
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	0.07	-	-	<50	<50	<50	<5	-	<50
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.01	-	-	<50	<50	<50	<5	-	<50
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.01	-	-	<50	<50	<50	<5	-	<50
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	0.92	-	-	<50	<50	<50	<5	-	<50
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	0.37	-	-	<50	<50	<50	<5	-	<50
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	0.41	-	-	<50	<50	<50	<5	-	<50
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	-	0.10	0.12	-	-	-	-	<0.001	-

Statistics

	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
Number of Results	**6**	**1**	**1**	**6**	**6**	**6**	**6**	**1**	**6**
Number of Detects	**4**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**0.1**	**0.12**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<50**
Minimum Detect	**0.07**	**0.1**	**0.12**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**0.92**	**0.1**	**0.12**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<50**
Maximum Detect	**0.92**	**0.1**	**0.12**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.3**			**25**	**25**	**25**	**2.5**		**25**
Median Concentration *	**0.22**	**0.1**	**0.12**	**25**	**25**	**25**	**2.5**	**0.0005**	**25**
Standard Deviation *	**0.35**			**0**	**0**	**0**	**0**		**0**
95% UCL (Student's-t) *	**0.588**			**25**	**25**	**25**	**2.5**		**25**
% of Detects	**67**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**33**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Physico-Chemic									
							Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
							mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.1	0.01	0.01	1	0.1	10	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)									3.29			37,300				
ANZECC 2000 SE Aust - Estuaries									7-8.5							
NEPM 2013 Table 1C GILs, Marine Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426006002	**CZ1/Shallow**	**CZ1_BH13_W**		**06 Aug 2024**	**Water**	**Normal**	238	6.51	7.24	28,200	6.8	18,900	8,760	2,440	<1	<1
ES2426006003	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**06 Aug 2024**	**Water**	**Normal**	202	7.25	7.59	3,630	5.1	2,140	658	348	<1	<1
ES2426006004	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**06 Aug 2024**	**Water**	**Normal**	42.3	5.24	5.44	23,600	4.4	19,500	6,380	5,500	<1	<1
ES2426449007	**CZ1/Shallow**	**SMW_ENV226_S**		**12 Aug 2024**	**Water**	**Normal**	-15.3	6.52	7.33	7,620	6.7	5,610	1,430	1,770	<1	<1

Statistics

Statistic	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**0**	**0**
Minimum Concentration	**-15.3**	**5.24**	**5.44**	**3,630**	**4.4**	**2,140**	**658**	**348**	**<1**	**<1**
Minimum Detect	**-15.3**	**5.24**	**5.44**	**3,630**	**4.4**	**2,140**	**658**	**348**	**ND**	**ND**
Maximum Concentration	**238**	**7.25**	**7.59**	**28,200**	**6.8**	**19,500**	**8,760**	**5,500**	**<1**	**<1**
Maximum Detect	**238**	**7.25**	**7.59**	**28,200**	**6.8**	**19,500**	**8,760**	**5,500**	**ND**	**ND**
Average Concentration *	**117**	**6.4**	**6.9**	**15,762**	**5.7**	**11,538**	**4,307**	**2,514**	**0.5**	**0.5**
Median Concentration *	**122.15**	**6.515**	**7.285**	**15,610**	**5.9**	**12,255**	**3,905**	**2,105**	**0.5**	**0.5**
Standard Deviation *	**122**	**0.84**	**0.98**	**11,967**	**1.2**	**8,964**	**3,904**	**2,173**	**0**	**0**
95% UCL (Student's-t) *	**260.8**	**7.363**	**8.059**	**29,844**	**7.151**	**22,085**	**8,901**	**5,072**	**0.5**	**0.5**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	al & Major Ions									
							Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L
EQL							1	1	1	1	1	1	0.01	0.01	0.01	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																
ANZECC 2000 SE Aust - Estuaries																
NEPM 2013 Table 1C GILs, Marine Waters																
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	209	209	208	496	5,340	124	302	287	2.62	2,560
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	484	484	155	53	508	23	35.5	34.8	0.99	605
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	62	62	291	595	3,960	105	296	283	2.20	3,180
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	365	365	461	236	956	81	84.5	86.1	0.94	2,120

Statistics

Statistics	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Minimum Concentration	**62**	**62**	**155**	**53**	**508**	**23**	**35.5**	**34.8**	**0.94**	**605**
Minimum Detect	**62**	**62**	**155**	**53**	**508**	**23**	**35.5**	**34.8**	**0.94**	**605**
Maximum Concentration	**484**	**484**	**461**	**595**	**5,340**	**124**	**302**	**287**	**2.62**	**3,180**
Maximum Detect	**484**	**484**	**461**	**595**	**5,340**	**124**	**302**	**287**	**2.62**	**3,180**
Average Concentration *	**280**	**280**	**279**	**345**	**2,691**	**83**	**180**	**173**	**1.7**	**2,116**
Median Concentration *	**287**	**287**	**249.5**	**366**	**2,458**	**93**	**190.25**	**184.55**	**1.595**	**2,340**
Standard Deviation *	**184**	**184**	**134**	**247**	**2,338**	**44**	**139**	**131**	**0.85**	**1,097**
95% UCL (Student's-t) *	**496.3**	**496.3**	**436.2**	**635.2**	**5,442**	**134.8**	**343.6**	**327.3**	**2.69**	**3,407**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Nutrients									
	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L
EQL	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	0.91									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species			2.4							
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)	1.9					2.32	0.2			5.95
ANZECC 2000 SE Aust - Estuaries						0.3		0.005		
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	0.76	2.4	<0.01	<0.01	<0.01	2.4	<0.10#1	<0.01	<0.01	1
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	5.84	9.0	3.63	0.02	3.65	12.6	0.04	<0.01	<0.01	4
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	0.86	5.6	<0.01	<0.01	<0.01	5.6	<0.10#1	<0.01	0.78	9
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	7.78	13.3	0.02	<0.01	0.02	13.3	1.24	<0.01	-	2

Statistics

Statistics	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	**4**
Number of Detects	**4**	**4**	**2**	**1**	**2**	**4**	**2**	**0**	**1**	**4**
Minimum Concentration	**0.76**	**2.4**	**<0.01**	**<0.01**	**<0.01**	**2.4**	**0.04**	**<0.01**	**<0.01**	**1**
Minimum Detect	**0.76**	**2.4**	**0.02**	**0.02**	**0.02**	**2.4**	**0.04**	**ND**	**0.78**	**1**
Maximum Concentration	**7.78**	**13.3**	**3.63**	**0.02**	**3.65**	**13.3**	**1.24**	**<0.01**	**0.78**	**9**
Maximum Detect	**7.78**	**13.3**	**3.63**	**0.02**	**3.65**	**13.3**	**1.24**	**ND**	**0.78**	**9**
Average Concentration *	**3.8**	**7.6**	**0.91**	**0.0088**	**0.92**	**8.5**	**0.34**	**0.005**	**0.26**	**4**
Median Concentration *	**3.35**	**7.3**	**0.0125**	**0.005**	**0.0125**	**9.1**	**0.05**	**0.005**	**0.005**	**3**
Standard Deviation *	**3.6**	**4.7**	**1.8**	**0.0075**	**1.8**	**5.3**	**0.6**	**0**	**0.45**	**3.6**
95% UCL (Student's-t) *	**7.992**	**13.07**	**3.045**	**0.0176**	**3.062**	**14.76**	**1.047**	**0.005**	**1.018**	**8.188**
% of Detects	**100**	**100**	**50**	**25**	**50**	**100**	**50**	**0**	**33**	**100**
% of Non-Detects	**0**	**0**	**50**	**75**	**50**	**0**	**50**	**100**	**67**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T3. Groundwater Analytical Results – Clyde Zone 1 – Shallow Aquifer – Marine Trigger Criteria

	Metals									
	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)
	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L
EQL	0.1	0.01	0.01	1	1	0.05	1	0.001	0.1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	5.5	0.0044	0.027		1.3		4.4		0.4	70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)				5	8		6	1.201		54
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters	0.7	0.0044	0.027		1.3		4.4		0.1	7

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.1	<0.01	<0.01	<1	2	1.40	<1	0.438	<0.1	1
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.1	<0.01	<0.01	<1	1	0.53	<1	0.151	<0.1	6
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.1	<0.01	<0.01	2	<1	969	<1	0.938	<0.1	30
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.1	<0.01	<0.01	2	<1	110	<1	1.85	<0.1	8

Statistics

Statistics	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**2**	**2**	**4**	**0**	**4**	**0**	**4**
Minimum Concentration	**<0.1**	**<0.01**	**<0.01**	**<1**	**1**	**0.53**	**<1**	**0.151**	**<0.1**	**1**
Minimum Detect	**ND**	**ND**	**ND**	**2**	**1**	**0.53**	**ND**	**0.151**	**ND**	**1**
Maximum Concentration	**<0.1**	**<0.01**	**<0.01**	**2**	**2**	**969**	**<1**	**1.85**	**<0.1**	**30**
Maximum Detect	**ND**	**ND**	**ND**	**2**	**2**	**969**	**ND**	**1.85**	**ND**	**30**
Average Concentration *	**0.05**	**0.005**	**0.005**	**1.2**	**1**	**270**	**0.5**	**0.84**	**0.05**	**11**
Median Concentration *	**0.05**	**0.005**	**0.005**	**1.25**	**0.75**	**55.7**	**0.5**	**0.688**	**0.05**	**7**
Standard Deviation *	**0**	**0**	**0**	**0.87**	**0.71**	**469**	**0**	**0.75**	**0**	**13**
95% UCL (Student's-t) *	**0.05**	**0.005**	**0.005**	**2.269**	**1.832**	**821.7**	**0.5**	**1.721**	**0.05**	**26.36**
% of Detects	**0**	**0**	**0**	**50**	**50**	**100**	**0**	**100**	**0**	**100**
% of Non-Detects	**100**	**100**	**100**	**50**	**50**	**0**	**100**	**0**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

		BTEX								
	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	1	2	2	2	2	2	1	5	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	8	700	180	80				70	70	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)	154									
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters	15	500						50	50	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	10	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	14	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	151	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	11	<1	<2	<2	<2	<2	<2	<1.0	<5	<1

Statistics

Statistics	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**10**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**
Minimum Detect	**10**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**151**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**
Maximum Detect	**151**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**46**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**
Median Concentration *	**12.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**
Standard Deviation *	**70**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**128.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**
% of Detects	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	TRH									
	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	20	100	100	100	100	100	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										30
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<20	<20	<100	<100	280	<100	280	<5	<5	<5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	260	260	<100	<100	230	<100	230	<5	<5	<5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5

Statistics

Statistics	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	1	1	0	0	2	0	2	0	0	0
Minimum Concentration	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5
Minimum Detect	260	260	ND	ND	230	ND	230	ND	ND	ND
Maximum Concentration	260	260	<100	<100	280	<100	280	<5	<5	<5
Maximum Detect	260	260	ND	ND	280	ND	280	ND	ND	ND
Average Concentration *	72	72	50	50	152	50	152	2.5	2.5	2.5
Median Concentration *	10	10	50	50	140	50	140	2.5	2.5	2.5
Standard Deviation *	125	125	0	0	120	0	120	0	0	0
95% UCL (Student's-t) *	219.6	219.6	50	50	293.8	50	293.8	2.5	2.5	2.5
% of Detects	25	25	0	0	50	0	50	0	0	0
% of Non-Detects	75	75	100	100	50	100	50	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	MAH						Halogenated Hydrocarbons			
	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	50	50	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5

Statistics

Statistics	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							50	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									270	400	1,900		700			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																
ANZECC 2000 SE Aust - Estuaries																
NEPM 2013 Table 1C GILs, Marine Waters											1,900					
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistic	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chlorinated Hydrocarbons									
	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	50	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	1,900	900	1,100				240			770
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5

Statistics

Statistics	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	50	5	5	5	5	5	5	5	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)						330	70			100
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
ES2426006002	**CZ1/Shallow**	**CZ1_BH13_W**		**06 Aug 2024**	**Water**	**Normal**	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426006003	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**06 Aug 2024**	**Water**	**Normal**	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426006004	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**06 Aug 2024**	**Water**	**Normal**	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426449007	**CZ1/Shallow**	**SMW_ENV226_S**		**12 Aug 2024**	**Water**	**Normal**	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50

Statistics

Statistic	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Median Concentration *	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Halogenated Benzenes									
	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		80							55	0.1
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters		20								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<5	<5	<5	21	36	<5	<5	<5	296	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5

Statistics

Statistics	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	1	1	0	0	0	1	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
Minimum Detect	ND	ND	ND	21	36	ND	ND	ND	296	ND
Maximum Concentration	<5	<5	<5	21	36	<5	<5	<5	296	<0.5
Maximum Detect	ND	ND	ND	21	36	ND	ND	ND	296	ND
Average Concentration *	2.5	2.5	2.5	7.1	11	2.5	2.5	2.5	76	0.25
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.25
Standard Deviation *	0	0	0	9.2	17	0	0	0	147	0
95% UCL (Student's-t) *	2.5	2.5	2.5	18.01	30.58	2.5	2.5	2.5	248.6	0.25
% of Detects	0	0	0	25	25	0	0	0	25	0
% of Non-Detects	100	100	100	75	75	100	100	100	75	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	VOCs									
	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	1	1	1	1	0.5	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			80			0.4		0.2		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0

Statistics

Statistics	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<1	<1	<1	<1	<0.5	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<1	<1	<1	<1	<0.5	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
Median Concentration *	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	PAH									
	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L
EQL	1	1	1	1	1	1	1	1	0.0005	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)				1.4			2			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5

Statistics

Statistic	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25
Median Concentration *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	TPH					PCBs				
	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	50	100	50	50	1	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<20	<50	290	<50	290	<1	<0.5	<0.5	<0.5	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	260	50	270	<50	320	<1	<0.5	<0.5	<0.5	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<20	<50	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<20	<50	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	1	1	2	0	2	0	0	0	0	0
Minimum Concentration	<20	50	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5
Minimum Detect	260	50	270	ND	290	ND	ND	ND	ND	ND
Maximum Concentration	260	50	290	<50	320	<1	<0.5	<0.5	<0.5	<0.5
Maximum Detect	260	50	290	ND	320	ND	ND	ND	ND	ND
Average Concentration *	72	31	165	25	165	0.5	0.25	0.25	0.25	0.25
Median Concentration *	10	25	160	25	157.5	0.5	0.25	0.25	0.25	0.25
Standard Deviation *	125	12	133	0	162	0	0	0	0	0
95% UCL (Student's-t) *	219.6	45.96	321.5	25	355.8	0.5	0.25	0.25	0.25	0.25
% of Detects	25	25	50	0	50	0	0	0	0	0
% of Non-Detects	75	75	50	100	50	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Organochlorine Pesticides									
							b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																
ANZECC 2000 SE Aust - Estuaries																
NEPM 2013 Table 1C GILs, Marine Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5

Statistics

Statistic	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			0.008							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters			0.004							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5

Statistics

Statistics	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T3. Groundwater Analytical Results – Clyde Zone 1 – Shallow Aquifer – Marine Trigger Criteria

	Organophosphorous Pesticides									
	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)				0.009						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters				0.009						

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

								Pesticides	Perfluoroalkyl	
	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	2	2	2	0.5	0.5	0.02	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%										
PFAS NEMP 2020 Interim Marine 99%										
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	0.50	1.33
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	0.07	0.04
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	<0.01
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	0.05

Statistics

Statistics	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**
Minimum Concentration	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**	**<0.5**	**<0.5**	**<0.02**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.07**	**0.04**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**	**<0.5**	**<0.5**	**0.5**	**1.33**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.5**	**1.33**
Average Concentration *	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**0.25**	**0.15**	**0.36**
Median Concentration *	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**0.25**	**0.04**	**0.045**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.24**	**0.65**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**0.25**	**0.426**	**1.12**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**75**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**50**	**25**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Sulfonic Acids		Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acid		
	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										
PFAS NEMP 2020 Interim Marine 95%	0.13						220			
PFAS NEMP 2020 Interim Marine 99%	0.00023						19			
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)										
ANZECC 2000 SE Aust - Estuaries										
NEPM 2013 Table 1C GILs, Marine Waters										

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	0.56	1.89	0.1	0.08	0.40	0.06	0.08	<0.05	<0.05	<0.05
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	0.02	0.06	<0.1	0.02	0.03	<0.02	0.02	<0.05	<0.05	<0.05
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.01	0.05	<0.1	0.03	<0.02	<0.02	0.01	<0.05	<0.05	<0.05

Statistics

Statistics	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS
Number of Results	4	4	4	4	4	4	4	4	4	4
Number of Detects	2	3	1	3	2	1	3	0	0	0
Minimum Concentration	<0.01	<0.01	0.1	0.02	<0.02	<0.02	0.01	<0.05	<0.05	<0.05
Minimum Detect	0.02	0.05	0.1	0.02	0.03	0.06	0.01	ND	ND	ND
Maximum Concentration	0.56	1.89	0.1	0.08	0.4	0.06	0.08	<0.05	<0.05	<0.05
Maximum Detect	0.56	1.89	0.1	0.08	0.4	0.06	0.08	ND	ND	ND
Average Concentration *	0.15	0.5	0.062	0.035	0.11	0.022	0.029	0.025	0.025	0.025
Median Concentration *	0.0125	0.055	0.05	0.025	0.02	0.01	0.015	0.025	0.025	0.025
Standard Deviation *	0.28	0.93	0.025	0.031	0.19	0.025	0.035	0	0	0
95% UCL (Student's-t) *	0.471	1.591	0.0919	0.0716	0.338	0.0519	0.0696	0.025	0.025	0.025
% of Detects	50	75	25	75	50	25	75	0	0	0
% of Non-Detects	50	25	75	25	50	75	25	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	ls	PFAS Totals	Solvents				
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.05	0.01	50	50	50	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species							
PFAS NEMP 2020 Interim Marine 95%							
PFAS NEMP 2020 Interim Marine 99%							
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)							
ANZECC 2000 SE Aust - Estuaries							
NEPM 2013 Table 1C GILs, Marine Waters							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	10:2 FTS	Sum of PFAS (WA DER List)	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
ES2426006002	CZ1/Shallow	CZ1_BH13_W		06 Aug 2024	Water	Normal	<0.05	3.11	<50	<50	<50	<5	<50
ES2426006003	CZ1/Shallow	SMW_WTP_BH25_S		06 Aug 2024	Water	Normal	<0.05	0.20	<50	<50	<50	<5	<50
ES2426006004	CZ1/Shallow	SMW_WTP_BH25_W		06 Aug 2024	Water	Normal	<0.05	<0.01	<50	<50	<50	<5	<50
ES2426449007	CZ1/Shallow	SMW_ENV226_S		12 Aug 2024	Water	Normal	<0.05	0.09	<50	<50	<50	<5	<50

Statistics

Statistics	10:2 FTS	Sum of PFAS (WA DER List)	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
Number of Results	4	4	4	4	4	4	4
Number of Detects	0	3	0	0	0	0	0
Minimum Concentration	<0.05	<0.01	<50	<50	<50	<5	<50
Minimum Detect	ND	0.09	ND	ND	ND	ND	ND
Maximum Concentration	<0.05	3.11	<50	<50	<50	<5	<50
Maximum Detect	ND	3.11	ND	ND	ND	ND	ND
Average Concentration *	0.025	0.85	25	25	25	2.5	25
Median Concentration *	0.025	0.145	25	25	25	2.5	25
Standard Deviation *	0	1.5	0	0	0	0	0
95% UCL (Student's-t) *	0.025	2.626	25	25	25	2.5	25
% of Detects	0	75	0	0	0	0	0
% of Non-Detects	100	25	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

	Physico-Chemical & Major Io										
	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)			4.9			23,970					
ANZECC 2000 SE Aust - Estuaries			7-8.5								
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	89.3	5.88	6.16	5,930	5.8	3,750	1,730	662	<1	<1	65
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	92.3	5.28	5.65	19,400	5.3	13,700	6,310	1,110	<1	<1	21
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	152	6.93	7.07	2,830	6.5	1,660	712	200	<1	<1	247

Statistics

Statistics	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**0**	**0**	**3**
Minimum Concentration	**89.3**	**5.28**	**5.65**	**2,830**	**5.3**	**1,660**	**712**	**200**	**<1**	**<1**	**21**
Minimum Detect	**89.3**	**5.28**	**5.65**	**2,830**	**5.3**	**1,660**	**712**	**200**	**ND**	**ND**	**21**
Maximum Concentration	**152**	**6.93**	**7.07**	**19,400**	**6.5**	**13,700**	**6,310**	**1,110**	**<1**	**<1**	**247**
Maximum Detect	**152**	**6.93**	**7.07**	**19,400**	**6.5**	**13,700**	**6,310**	**1,110**	**ND**	**ND**	**247**
Average Concentration *	**111**	**6**	**6.3**	**9,387**	**5.9**	**6,370**	**2,917**	**657**	**0.5**	**0.5**	**111**
Median Concentration *	**92.3**	**5.88**	**6.16**	**5,930**	**5.8**	**3,750**	**1,730**	**662**	**0.5**	**0.5**	**65**
Standard Deviation *	**35**	**0.84**	**0.72**	**8,809**	**0.6**	**6,433**	**2,982**	**455**	**0**	**0**	**120**
95% UCL (Student's-t) *	**170.8**	**7.438**	**7.506**	**24,238**	**6.883**	**17,216**	**7,944**	**1,424**	**0.5**	**0.5**	**313**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	ns										
	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total
	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L
EQL	1	1	1	1	1	0.01	0.01	0.01	1	0.01	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										0.91	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)										1.32	
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	65	44	87	1,060	2	63.9	55.5	7.01	468	0.02	0.3
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	21	66	419	3,170	6	202	176	6.81	1,890	0.12	0.4
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	247	77	85	366	11	29.2	27.0	3.81	542	<0.01	0.4

Statistics

Statistics	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**
Minimum Concentration	**21**	**44**	**85**	**366**	**2**	**29.2**	**27**	**3.81**	**468**	**<0.01**	**0.3**
Minimum Detect	**21**	**44**	**85**	**366**	**2**	**29.2**	**27**	**3.81**	**468**	**0.02**	**0.3**
Maximum Concentration	**247**	**77**	**419**	**3,170**	**11**	**202**	**176**	**7.01**	**1,890**	**0.12**	**0.4**
Maximum Detect	**247**	**77**	**419**	**3,170**	**11**	**202**	**176**	**7.01**	**1,890**	**0.12**	**0.4**
Average Concentration *	**111**	**62**	**197**	**1,532**	**6.3**	**98**	**86**	**5.9**	**967**	**0.048**	**0.37**
Median Concentration *	**65**	**66**	**87**	**1,060**	**6**	**63.9**	**55.5**	**6.81**	**542**	**0.02**	**0.4**
Standard Deviation *	**120**	**17**	**192**	**1,460**	**4.5**	**91**	**79**	**1.8**	**800**	**0.063**	**0.058**
95% UCL (Student's-t) *	**313**	**90.66**	**521.1**	**3,994**	**13.94**	**252.5**	**219.5**	**8.899**	**2,316**	**0.154**	**0.464**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**67**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Nutrients										
							Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L
EQL							0.01	0.01	0.01	0.1	0.01	0.01	0.01	1	0.1	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)															5.5	0.0044	0.027
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species							2.4										
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)										2.1	0.8			5			
ANZECC 2000 SE Aust - Estuaries										0.3		0.005					
NEPM 2013 Table 1C GILs, Marine Waters															0.7	0.0044	0.027
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<0.01	<0.01	<0.01	0.3	0.06	<0.01	0.02	<1	<0.1	<0.01	<0.01
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	2.86	<0.01	2.86	3.3	0.07	0.02	0.75	4	<0.1	<0.01	<0.01
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	0.06	<0.01	0.06	0.5	0.02	<0.01	<0.01	<1	<0.1	<0.01	<0.01

Statistics

Statistics	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**2**	**0**	**2**	**3**	**3**	**1**	**2**	**1**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.01**	**<0.01**	**0.3**	**0.02**	**<0.01**	**<0.01**	**<1**	**<0.1**	**<0.01**	**<0.01**
Minimum Detect	**0.06**	**ND**	**0.06**	**0.3**	**0.02**	**0.02**	**0.02**	**4**	**ND**	**ND**	**ND**
Maximum Concentration	**2.86**	**<0.01**	**2.86**	**3.3**	**0.07**	**0.02**	**0.75**	**4**	**<0.1**	**<0.01**	**<0.01**
Maximum Detect	**2.86**	**ND**	**2.86**	**3.3**	**0.07**	**0.02**	**0.75**	**4**	**ND**	**ND**	**ND**
Average Concentration *	**0.98**	**0.005**	**0.98**	**1.4**	**0.05**	**0.01**	**0.26**	**1.7**	**0.05**	**0.005**	**0.005**
Median Concentration *	**0.06**	**0.005**	**0.06**	**0.5**	**0.06**	**0.005**	**0.02**	**0.5**	**0.05**	**0.005**	**0.005**
Standard Deviation *	**1.6**	**0**	**1.6**	**1.7**	**0.026**	**0.0087**	**0.43**	**2**	**0**	**0**	**0**
95% UCL (Student's-t) *	**3.727**	**0.005**	**3.727**	**4.194**	**0.0946**	**0.0246**	**0.976**	**5.073**	**0.05**	**0.005**	**0.005**
% of Detects	**67**	**0**	**67**	**100**	**100**	**33**	**67**	**33**	**0**	**0**	**0**
% of Non-Detects	**33**	**100**	**33**	**0**	**0**	**67**	**33**	**67**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Metals										
	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene
	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	0.05	1	0.001	0.1	1	5	1	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		1.3		4.4		0.4	70	8	700	180	80
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)		4			0.768		30	88			
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters		1.3		4.4		0.1	7	15	500		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<1	2	0.08	<1	0.839	<0.1	12	33	<1	<2	<2
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<1	<1	3.21	1	0.289	<0.1	26	63	<1	<2	<2
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<1	4	0.13	<1	0.027	<0.1	7	11	<1	<2	<2

Statistics

Statistics	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**2**	**3**	**1**	**3**	**0**	**3**	**3**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**0.08**	**1**	**0.027**	**<0.1**	**7**	**11**	**<1**	**<2**	**<2**
Minimum Detect	**ND**	**2**	**0.08**	**1**	**0.027**	**ND**	**7**	**11**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**4**	**3.21**	**1**	**0.839**	**<0.1**	**26**	**63**	**<1**	**<2**	**<2**
Maximum Detect	**ND**	**4**	**3.21**	**1**	**0.839**	**ND**	**26**	**63**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**2.2**	**1.1**	**0.67**	**0.38**	**0.05**	**15**	**36**	**0.5**	**1**	**1**
Median Concentration *	**0.5**	**2**	**0.13**	**0.5**	**0.289**	**0.05**	**12**	**33**	**0.5**	**1**	**1**
Standard Deviation *	**0**	**1.8**	**1.8**	**0.29**	**0.41**	**0**	**9.8**	**26**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.5**	**5.127**	**4.162**	**1.153**	**1.084**	**0.05**	**31.6**	**79.67**	**0.5**	**1**	**1**
% of Detects	**0**	**67**	**100**	**33**	**100**	**0**	**100**	**100**	**0**	**0**	**0**
% of Non-Detects	**100**	**33**	**0**	**67**	**0**	**100**	**0**	**0**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							BTEX						TRH				
							Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							2	2	2	1	5	1	20	20	100	100	100
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										70	70						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters										50	50						
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100

Statistics

	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**
Median Concentration *	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

			MAH								
	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	100	100	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					30						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Median Concentration *	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Halogenated Hydrocarbons										
	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	50	50	5	50	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							270	400	1,900		700
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters									1,900		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5

Statistics

Statistic	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

	Chlorinated Hydrocarbons										
	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)				1,900	900	1,100				240	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	50	5	50	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		770						330	70		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

		Halogenated Benzenes									
	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	50	5	5	5	5	5	5	5	5	5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	100		80							55	0.1
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters			20								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5

Statistics

Statistics	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.25
Median Concentration *	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

							VOCs										
							cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							5	5	5	1	1	1	1	0.5	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									80			0.4		0.2			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
Statistics																	
Number of Results							**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<5**	**<5**	**<5**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<5**	**<5**	**<5**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**2.5**	**2.5**	**2.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**
Median Concentration *							**2.5**	**2.5**	**2.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**
Standard Deviation *							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *							**2.5**	**2.5**	**2.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

	PAH										
	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	0.0005	0.5	20	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			1.4			2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50

Statistics

Statistics	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25
Median Concentration *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	TPH			PCBs							
	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	100	50	50	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<50**	**<50**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<100**	**<50**	**<50**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**50**	**25**	**25**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**50**	**25**	**25**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**50**	**25**	**25**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

	Organochlorine Pesticides										
	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										0.008	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters										0.004	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										0.009	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters										0.009	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
Number of Results	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Organophosphorous Pesticides										
							Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**07 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0
ES2426006010	**Rosehill/Shallow**	**CZ4e_MW02_W**		**07 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0
ES2426006012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**07 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0

Statistics

	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T4. Groundwater Analytical Results – Rosehill – Shallow Aquifer – Marine Trigger Criteria

		Pesticides	Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid				
	Prothiofos	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%					0.13						220
PFAS NEMP 2020 Interim Marine 99%					0.00023						19
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<0.5	<0.5	0.02	0.04	0.01	0.05	<0.1	<0.02	<0.02	<0.02	0.01
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<0.5	<0.5	0.02	0.02	<0.01	0.02	<0.1	<0.02	<0.02	<0.02	<0.01

Statistics

Statistics	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**2**	**2**	**1**	**2**	**0**	**0**	**0**	**0**	**1**
Minimum Concentration	**<0.5**	**<0.5**	**0.02**	**<0.01**	**0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**0.01**
Minimum Detect	**ND**	**ND**	**0.02**	**0.02**	**0.01**	**0.02**	**ND**	**ND**	**ND**	**ND**	**0.01**
Maximum Concentration	**<0.5**	**<0.5**	**0.02**	**0.04**	**0.01**	**0.05**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**0.01**
Maximum Detect	**ND**	**ND**	**0.02**	**0.04**	**0.01**	**0.05**	**ND**	**ND**	**ND**	**ND**	**0.01**
Average Concentration *	**0.25**	**0.25**	**0.017**	**0.022**	**0.0067**	**0.025**	**0.05**	**0.01**	**0.01**	**0.01**	**0.0067**
Median Concentration *	**0.25**	**0.25**	**0.02**	**0.02**	**0.005**	**0.02**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**
Standard Deviation *	**0**	**0**	**0.0058**	**0.018**	**0.0029**	**0.023**	**0**	**0**	**0**	**0**	**0.0029**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.0264**	**0.0513**	**0.0115**	**0.0636**	**0.05**	**0.01**	**0.01**	**0.01**	**0.0115**
% of Detects	**0**	**0**	**67**	**67**	**33**	**67**	**0**	**0**	**0**	**0**	**33**
% of Non-Detects	**100**	**100**	**33**	**33**	**67**	**33**	**100**	**100**	**100**	**100**	**67**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Fluorotelomer Sulfonic Acids				PFAS Totals	Solvents				
							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)	Sum of PFAS (WA DER List)	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.05	0.05	0.05	0.05	0.01	50	50	50	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																
ANZECC 2000 SE Aust - Estuaries																
NEPM 2013 Table 1C GILs, Marine Waters																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**										
ES2426006009	Rosehill/Shallow	CZ4e_MW03_W		07 Aug 2024	Water	Normal	<0.05	<0.05	<0.05	<0.05	0.08	<50	<50	<50	<5	<50
ES2426006010	Rosehill/Shallow	CZ4e_MW02_W		07 Aug 2024	Water	Normal	<0.05	<0.05	<0.05	<0.05	<0.01	<50	<50	<50	<5	<50
ES2426006012	Rosehill/Shallow	SMW_WTP_BH13_W		07 Aug 2024	Water	Normal	<0.05	<0.05	<0.05	<0.05	0.04	<50	<50	<50	<5	<50

Statistics

Statistic	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.01**	**<50**	**<50**	**<50**	**<5**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**0.04**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**0.08**	**<50**	**<50**	**<50**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**0.08**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.025**	**0.025**	**0.025**	**0.025**	**0.042**	**25**	**25**	**25**	**2.5**	**25**
Median Concentration *	**0.025**	**0.025**	**0.025**	**0.025**	**0.04**	**25**	**25**	**25**	**2.5**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0.038**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.025**	**0.025**	**0.025**	**0.025**	**0.105**	**25**	**25**	**25**	**2.5**	**25**
% of Detects	**0**	**0**	**0**	**0**	**67**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**33**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T5. Groundwater Analytical Results - Rosehill – Deep Aquifer – Marine Trigger Criteria

	Physico-Chemical & Major Ions											
	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)			6.3			18,633						
ANZECC 2000 SE Aust - Estuaries			7-8.5									
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	<1	<1	127	127

Statistics	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	1	1	1	1	1	1	1	1	0	0	1	1
Minimum Concentration	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	<1	<1	127	127
Minimum Detect	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	ND	ND	127	127
Maximum Concentration	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	<1	<1	127	127
Maximum Detect	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	ND	ND	127	127
Average Concentration *												
Median Concentration *	197	6.14	6.36	24,900	4.9	18,600	9,230	1,120	0.5	0.5	127	127
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	100	100	100	100	100	100	100	100	0	0	100	100
% of Non-Detects	0	0	0	0	0	0	0	0	100	100	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T5. Groundwater Analytical Results - Rosehill – Deep Aquifer – Marine Trigger Criteria

									Nutr			
	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	1	1	1	0.01	0.01	0.01	1	0.01	0.1	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.91			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											2.4	
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)									3.12			
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	481	613	4,140	14	286	255	5.79	3,720	0.75	18.0	<0.01	0.08

Statistics

Statistics	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**1**
Minimum Concentration	**481**	**613**	**4,140**	**14**	**286**	**255**	**5.79**	**3,720**	**0.75**	**18**	**<0.01**	**0.08**
Minimum Detect	**481**	**613**	**4,140**	**14**	**286**	**255**	**5.79**	**3,720**	**0.75**	**18**	**ND**	**0.08**
Maximum Concentration	**481**	**613**	**4,140**	**14**	**286**	**255**	**5.79**	**3,720**	**0.75**	**18**	**<0.01**	**0.08**
Maximum Detect	**481**	**613**	**4,140**	**14**	**286**	**255**	**5.79**	**3,720**	**0.75**	**18**	**ND**	**0.08**
Average Concentration *												
Median Concentration *	**481**	**613**	**4,140**	**14**	**286**	**255**	**5.79**	**3,720**	**0.75**	**18**	**0.005**	**0.08**
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	ients				Metals							
	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L
EQL	0.01	0.1	0.01	0.01	0.01	1	0.1	0.01	0.01	1	1	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							5.5	0.0044	0.027		1.3	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)		3.8	0.75			3					288	
ANZECC 2000 SE Aust - Estuaries		0.3		0.005								
NEPM 2013 Table 1C GILs, Marine Waters							0.7	0.0044	0.027		1.3	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	0.02	18.0	3.00	<0.01	<0.01	<1	0.2	<0.01	<0.01	<1	1,630	10.5

Statistics	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	1	1	1	0	0	0	1	0	0	0	1	1
Minimum Concentration	0.02	18	3	<0.01	<0.01	<1	0.2	<0.01	<0.01	<1	1,630	10.5
Minimum Detect	0.02	18	3	ND	ND	ND	0.2	ND	ND	ND	1,630	10.5
Maximum Concentration	0.02	18	3	<0.01	<0.01	<1	0.2	<0.01	<0.01	<1	1,630	10.5
Maximum Detect	0.02	18	3	ND	ND	ND	0.2	ND	ND	ND	1,630	10.5
Average Concentration *												
Median Concentration *	0.02	18	3	0.005	0.005	0.5	0.2	0.005	0.005	0.5	1,630	10.5
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	100	100	100	0	0	0	100	0	0	0	100	100
% of Non-Detects	0	0	0	100	100	100	0	100	100	100	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

												BTEX						
							Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
							µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	0.001	0.1	1	5	1	2	2	2	2	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							4.4		0.4	70	8	700	180	80				70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
PFAS NEMP 2020 Interim Marine 95%																		
PFAS NEMP 2020 Interim Marine 99%																		
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)								0.49		5	154							
ANZECC 2000 SE Aust - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters							4.4		0.1	7	15	500						50
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**												
ES2426006011	**Rosehill/Deep**	**SMW_ENV145_W**		**07 Aug 2024**	**Water**	**Normal**	<1	0.233	<0.1	9	15	<1	<2	<2	<2	<2	<2	<1.0
Statistics																		
Number of Results							**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects							**0**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<1**	**0.233**	**<0.1**	**9**	**15**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Minimum Detect							**ND**	**0.233**	**ND**	**9**	**15**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<1**	**0.233**	**<0.1**	**9**	**15**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Maximum Detect							**ND**	**0.233**	**ND**	**9**	**15**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *																		
Median Concentration *							**0.5**	**0.233**	**0.05**	**9**	**15**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Standard Deviation *																		
95% UCL (Student's-t) *																		
% of Detects							**0**	**100**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**0**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

			TRH									
	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
	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	5	1	20	20	100	100	100	100	100	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70											30
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters	50											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5

Statistics

Statistics	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	2.5	0.5	10	10	50	50	50	50	50	2.5	2.5	2.5
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	MAH						Halogenated Hydrocarbons					
	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
	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	5	5	5	5	5	5	5	50	50	5	50	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5

Statistics

Statistics	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
	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	5	5	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	270	400	1,900		700				1,900	900	1,100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters			1,900									

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chlorinated Hydrocarbons											
	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
	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	5	5	5	5	50	5	50	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			240			770						330
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5

Statistics	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Halogenated Benzenes							
	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
	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	5	5	5	50	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70			100		80						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters						20						

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *												
Median Concentration *	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

			VOCs									
	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
	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	5	0.5	5	5	5	1	1	1	1	0.5	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	55	0.1			80			0.4		0.2		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<5	<0.5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0

Statistics

Statistics	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<0.5	<5	<5	<5	<1	<1	<1	<1	<0.5	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<0.5	<5	<5	<5	<1	<1	<1	<1	<0.5	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	2.5	0.25	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	PAH											
	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	0.0005	0.5	20	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)				1.4			2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50

Statistics

Statistics	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T5. Groundwater Analytical Results - Rosehill – Deep Aquifer – Marine Trigger Criteria

	TPH			PCBs								
	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
	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	100	50	50	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<50**	**<50**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<100**	**<50**	**<50**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *												
Median Concentration *	**50**	**25**	**25**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T5. Groundwater Analytical Results - Rosehill – Deep Aquifer – Marine Trigger Criteria

	Organochlorine Pesticides											
	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
	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	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.008			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters									0.004			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

											Organophospho	
	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
	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	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.009				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters								0.009				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	rous Pesticides									Pesticides	Perfluoroalkyl	
	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	0.5	0.02	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	<0.01

Statistics

Statistics	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	<0.02	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	<0.02	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *												
Median Concentration *	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	0.25	0.01	0.005
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Sulfonic Acids		Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals
	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)
	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	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%	0.13						220					
PFAS NEMP 2020 Interim Marine 99%	0.00023						19					
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01

Statistics

Statistics	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *												
Median Concentration *	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.005**
Standard Deviation *												
95% UCL (Student's-t) *												
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T5. Groundwater Analytical Results - Rosehill – Deep Aquifer – Marine Trigger Criteria

	Solvents				
	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	50	50	50	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species					
PFAS NEMP 2020 Interim Marine 95%					
PFAS NEMP 2020 Interim Marine 99%					
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)					
ANZECC 2000 SE Aust - Estuaries					
NEPM 2013 Table 1C GILs, Marine Waters					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
ES2426006011	Rosehill/Deep	SMW_ENV145_W		07 Aug 2024	Water	Normal	<50	<50	<50	<5	<50

Statistics

Statistics	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
Number of Results	1	1	1	1	1
Number of Detects	0	0	0	0	0
Minimum Concentration	<50	<50	<50	<5	<50
Minimum Detect	ND	ND	ND	ND	ND
Maximum Concentration	<50	<50	<50	<5	<50
Maximum Detect	ND	ND	ND	ND	ND
Average Concentration *					
Median Concentration *	25	25	25	2.5	25
Standard Deviation *					
95% UCL (Student's-t) *					
% of Detects	0	0	0	0	0
% of Non-Detects	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

	Physico-Chemical & Major Ions												
	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)			5.4			24,180							
ANZECC 2000 SE Aust - Estuaries			7-8.5										
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	49.6	6.40	6.80	29,500	6.3	21,500	10,900	1,600	<1	<1	358	358	337
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	80.8	6.30	6.60	8,280	4.2	4,950	2,600	368	<1	<1	188	188	28
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-67.4	6.88	7.47	1,980	4.8	1,230	188	172	<1	<1	692	692	158
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	73.1	6.34	6.74	567	5.5	330	36	80	<1	<1	139	139	13
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistics

Statistics	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)
Number of Results	4	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects	4	4	4	4	4	4	4	4	0	0	4	4	4
Minimum Concentration	-67.4	6.3	6.6	567	4.2	330	36	80	<1	<1	139	139	13
Minimum Detect	-67.4	6.3	6.6	567	4.2	330	36	80	ND	ND	139	139	13
Maximum Concentration	80.8	6.88	7.47	29,500	6.3	21,500	10,900	1,600	<1	<1	692	692	337
Maximum Detect	80.8	6.88	7.47	29,500	6.3	21,500	10,900	1,600	ND	ND	692	692	337
Average Concentration *	34	6.5	6.9	10,082	5.2	7,002	3,431	555	0.5	0.5	344	344	134
Median Concentration *	61.35	6.37	6.77	5,130	5.15	3,090	1,394	270	0.5	0.5	273	273	93
Standard Deviation *	69	0.27	0.39	13,373	0.91	9,870	5,116	707	0	0	250	250	150
95% UCL (Student's-t) *	115.1	6.797	7.358	25,817	6.266	18,616	9,451	1,387	0.5	0.5	638.5	638.5	310.7
% of Detects	100	100	100	100	100	100	100	100	0	0	100	100	100
% of Non-Detects	0	0	0	0	0	0	0	0	100	100	0	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

								Nutrients					
	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)
	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	1	1	0.01	0.01	0.01	1	0.01	0.1	0.01	0.01	0.01	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.91					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										2.4			
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)								5.91					7.05
ANZECC 2000 SE Aust - Estuaries													0.3
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	835	5,080	21	348	307	6.24	4,280	0.86	1.1	<0.01	<0.01	<0.01	1.1
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	105	1,590	5	84.8	79.3	3.31	502	<0.01	0.3	<0.01	<0.01	<0.01	0.3
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	70	186	16	22.7	22.1	1.26	683	7.12	8.4	0.08	<0.01	0.08	8.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	20	72	12	5.46	5.73	2.46	115	0.02	0.2	0.09	<0.01	0.09	0.3
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistics

Statistics	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)
Number of Results	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	**4**	**2**	**0**	**2**	**4**
Minimum Concentration	**20**	**72**	**5**	**5.46**	**5.73**	**1.26**	**115**	**<0.01**	**0.2**	**<0.01**	**<0.01**	**<0.01**	**0.3**
Minimum Detect	**20**	**72**	**5**	**5.46**	**5.73**	**1.26**	**115**	**0.02**	**0.2**	**0.08**	**ND**	**0.08**	**0.3**
Maximum Concentration	**835**	**5,080**	**21**	**348**	**307**	**6.24**	**4,280**	**7.12**	**8.4**	**0.09**	**<0.01**	**0.09**	**8.5**
Maximum Detect	**835**	**5,080**	**21**	**348**	**307**	**6.24**	**4,280**	**7.12**	**8.4**	**0.09**	**ND**	**0.09**	**8.5**
Average Concentration *	**258**	**1,732**	**14**	**115**	**104**	**3.3**	**1,395**	**2**	**2.5**	**0.045**	**0.005**	**0.045**	**2.6**
Median Concentration *	**87.5**	**888**	**14**	**53.75**	**50.7**	**2.885**	**592.5**	**0.44**	**0.7**	**0.0425**	**0.005**	**0.0425**	**0.7**
Standard Deviation *	**387**	**2,336**	**6.8**	**159**	**139**	**2.1**	**1,938**	**3.4**	**4**	**0.046**	**0**	**0.046**	**4**
95% UCL (Student's-t) *	**712.4**	**4,481**	**21.45**	**302.2**	**267.4**	**5.815**	**3,675**	**6.044**	**7.152**	**0.0996**	**0.005**	**0.0996**	**7.239**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**75**	**100**	**50**	**0**	**50**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**50**	**100**	**50**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

			Metals										
	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)
	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L
EQL	0.01	0.01	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1	0.001
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					5.5	0.0044	0.027	0.027		1.3		4.4	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)	0.13			6	1					3			1.502
ANZECC 2000 SE Aust - Estuaries		0.005											
NEPM 2013 Table 1C GILs, Marine Waters					0.7	0.0044	0.027	0.027		1.3		4.4	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.01	<0.01	0.04	3	<0.1	<0.01	-	<0.01	<1	5	8.68	<1	1.03
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	0.02	<0.01	<0.01	2	<0.1	<0.01	-	<0.01	<1	<1	10.2	<1	0.454
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	0.42	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	<1	21.9	<1	0.964
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	0.04	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	16	<0.05	<1	0.082
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	0.02	-	-	<1	<0.1	<0.01	-	<0.01	<1	16	<0.05	<1	0.083
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	-	-	-	<1	<0.1	<0.005	<0.005	-	<1	21	0.01	<1	0.1

Statistics

Statistics	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)
Number of Results	**5**	**4**	**2**	**6**	**6**	**6**	**1**	**5**	**6**	**6**	**6**	**6**	**6**
Number of Detects	**4**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**0**	**6**
Minimum Concentration	**<0.01**	**<0.01**	**<0.01**	**<1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**<1**	**0.01**	**<1**	**0.082**
Minimum Detect	**0.02**	**ND**	**0.04**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**5**	**0.01**	**ND**	**0.082**
Maximum Concentration	**0.42**	**<0.01**	**0.04**	**3**	**<0.1**	**<0.01**	**<0.005**	**<0.01**	**<1**	**21**	**21.9**	**<1**	**1.03**
Maximum Detect	**0.42**	**ND**	**0.04**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**	**21**	**21.9**	**ND**	**1.03**
Average Concentration *	**0.1**	**0.005**	**0.022**	**1.2**	**0.05**	**0.0046**		**0.005**	**0.5**	**9.8**	**6.8**	**0.5**	**0.45**
Median Concentration *	**0.02**	**0.005**	**0.0225**	**0.5**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**10.5**	**4.3525**	**0.5**	**0.277**
Standard Deviation *	**0.18**	**0**	**0.025**	**1.1**	**0**	**0.001**		**0**	**0**	**8.9**	**8.7**	**0**	**0.45**
95% UCL (Student's-t) *	**0.271**	**0.005**	**0.133**	**2.055**	**0.05**	**0.00542**		**0.005**	**0.5**	**17.18**	**13.99**	**0.5**	**0.819**
% of Detects	**80**	**0**	**50**	**33**	**0**	**0**	**0**	**0**	**0**	**67**	**67**	**0**	**100**
% of Non-Detects	**20**	**100**	**50**	**67**	**100**	**100**	**100**	**100**	**100**	**33**	**33**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

					BTEX								
	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.05	1	0.05	1	1	1	1	2	1	2	0.1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	0.4	70		8	700	180	80				70	70	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)			0.13	25									
ANZECC 2000 SE Aust - Estuaries			0.03										
NEPM 2013 Table 1C GILs, Marine Waters	0.1	7		15	500						50	50	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.1	2	-	7	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.1	1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<0.1	1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.05	<1	<0.05	3	<1	<1	<1	<2	<1	-	<0.1	<1	-

Statistics

Statistics	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
Number of Results	**6**	**6**	**1**	**6**	**6**	**6**	**6**	**6**	**6**	**5**	**6**	**6**	**5**
Number of Detects	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**1**	**<0.05**	**3**	**<1**	**<1**	**<1**	**<2**	**<1**	**<2**	**<0.1**	**<1**	**<1**
Minimum Detect	**ND**	**1**	**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.1**	**2**	**<0.05**	**7**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**
Maximum Detect	**ND**	**2**	**ND**	**7**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.046**	**0.92**		**3.3**	**0.5**	**0.92**	**0.92**	**1**	**0.92**	**1**	**0.42**	**2.2**	**0.5**
Median Concentration *	**0.05**	**0.75**	**0.025**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**
Standard Deviation *	**0.01**	**0.58**		**1.8**	**0**	**0.2**	**0.2**	**0**	**0.2**	**0**	**0.18**	**0.82**	**0**
95% UCL (Student's-t) *	**0.0542**	**1.398**		**4.82**	**0.5**	**1.085**	**1.085**	**1**	**1.085**	**1**	**0.576**	**2.838**	**0.5**
% of Detects	**0**	**50**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**50**	**100**	**67**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

							TRH							MAH					
							C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene
							µg/L	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							10	10	50	50	100	100	50	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																30			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Interim Marine 95%																			
PFAS NEMP 2020 Interim Marine 99%																			
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**													
ES2426006013	**CZ3/Shallow**	**SMW_ENV039_W**		**07 Aug 2024**	**Water**	**Normal**	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
ES2426147002	**CZ3/Shallow**	**GALC-MW18**		**08 Aug 2024**	**Water**	**Normal**	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
ES2427457001	**CZ3/Shallow**	**SMW_ENV009_W**		**19 Aug 2024**	**Water**	**Normal**	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
ES2427457003	**CZ3/Shallow**	**SMW_BH057_S**		**19 Aug 2024**	**Water**	**Normal**	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
ES2427457004	**CZ3/Shallow**	**QC05**	**SMW_BH057_S**	**19 Aug 2024**	**Water**	**Field_D**	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
359802-1	**CZ3/Shallow**	**QC06**	**SMW_BH057_S**	**19 Aug 2024**	**Water**	**Interlab_D**	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1
Statistics																			
Number of Results							**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<10**	**<10**	**<50**	**<50**	**<100**	**<100**	**<50**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**9.2**	**9.2**	**46**	**46**	**50**	**50**	**46**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
Median Concentration *							**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *							**2**	**2**	**10**	**10**	**0**	**0**	**10**	**0.82**	**0.82**	**0.82**	**0.82**	**0.82**	**0.82**
95% UCL (Student's-t) *							**10.85**	**10.85**	**54.23**	**54.23**	**50**	**50**	**54.23**	**2.838**	**2.838**	**2.838**	**2.838**	**2.838**	**2.838**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane
				Halogenated Hydrocarbons									
	µg/L	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	1	1	1	10	10	5	10	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										270	400	1,900	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters												1,900	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1

Statistics

Statistics	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane
Number of Results	6	6	6	6	6	6	5	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<10	<10	<5	<10	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2	2.2	2.2	2.2	22	22	2.5	22	2.2	2.2	2.2	2.2	2.2
Median Concentration *	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0.82	0.82	0.82	0.82	8.2	8.2	0	8.2	0.82	0.82	0.82	0.82	0.82
95% UCL (Student's-t) *	2.838	2.838	2.838	2.838	28.38	28.38	2.5	28.38	2.838	2.838	2.838	2.838	2.838
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Chlorinated Hydrocarbons												
							1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
							µg/L	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	1	1	1	1	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							700				1,900	900	1,100					240	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Interim Marine 95%																			
PFAS NEMP 2020 Interim Marine 99%																			
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**													
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistic	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
Number of Results	6	6	6	6	6	6	6	6	1	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2		2.2	2.2	2.2	2.2
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.5	2.5	2.5	2.5	2.5
Standard Deviation *	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82		0.82	0.82	0.82	0.82
95% UCL (Student's-t) *	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838		2.838	2.838	2.838	2.838
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene
	µg/L	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	10	1	10	1	1	1	1	1	1	1	1	10	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		770						330	70			100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1

Statistics

Statistics	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	22	2.2	22	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	22	2.2
Median Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5
Standard Deviation *	8.2	0.82	8.2	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	8.2	0.82
95% UCL (Student's-t) *	28.38	2.838	28.38	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	28.38	2.838
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Halogenated Benzenes									VOCs			
	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	1	1	1	1	1	1	1	1	0.2	5	5	5	0.0002
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	80							55	0.1			80	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters	20												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	-	-	-	<0.0002

Statistics

Statistics	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene
Number of Results	6	6	6	6	6	6	6	6	6	5	5	5	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<5	<5	<5	<0.0002
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	<5	<0.0002
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	0.22	2.5	2.5	2.5	
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.25	2.5	2.5	2.5	0.0001
Standard Deviation *	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.061	0	0	0	
95% UCL (Student's-t) *	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	0.275	2.5	2.5	2.5	
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

	PAH												
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	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
EQL	0.1	0.1	0.1	0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			0.4		0.2						1.4		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics

Statistics	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene
Number of Results	**6**	**6**	**6**	**6**	**6**	**5**	**6**	**5**	**6**	**6**	**6**	**6**	**6**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.42**	**0.42**	**0.42**	**0.42**	**0.22**	**0.5**	**0.42**	**0.5**	**0.42**	**0.42**	**0.42**	**0.42**	**0.42**
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0.18**	**0.18**	**0.18**	**0.18**	**0.082**	**0**	**0.18**	**0**	**0.18**	**0.18**	**0.18**	**0.18**	**0.18**
95% UCL (Student's-t) *	**0.576**	**0.576**	**0.576**	**0.576**	**0.284**	**0.5**	**0.576**	**0.5**	**0.576**	**0.576**	**0.576**	**0.576**	**0.576**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

							TPH						
	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	Arochlor 1016	Arochlor 1221
	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50	50	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	2												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	Arochlor 1016	Arochlor 1221
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	<2	<2

Statistics

Statistics	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	Arochlor 1016	Arochlor 1221
Number of Results	**6**	**6**	**1**	**5**	**5**	**1**	**6**	**6**	**6**	**6**	**6**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**	**<50**	**<100**	**<50**	**<50**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<20**	**<50**	**<100**	**<100**	**<50**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.42**	**0.42**		**0.00025**	**0.25**		**9.2**	**25**	**50**	**29**	**25**		
Median Concentration *	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10**	**25**	**50**	**25**	**25**	**1**	**1**
Standard Deviation *	**0.18**	**0.18**		**0**	**0**		**2**	**0**	**0**	**10**	**0**		
95% UCL (Student's-t) *	**0.576**	**0.576**		**0.00025**	**0.25**		**10.85**	**25**	**50**	**37.56**	**25**		
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	PCBs												
	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)
	µg/L	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	2	2	2	2	2	1	0.2	0.2	0.5	0.2	0.2	0.5	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<2	<2	<2	<2	<2	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2

Statistics

Statistics	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)
Number of Results	1	1	1	1	1	5	6	6	5	6	6	5	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<2	<2	<1	<0.2	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *						0.5	0.22	0.22	0.25	0.22	0.22	0.25	0.22
Median Concentration *	1	1	1	1	1	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *						0	0.061	0.061	0	0.061	0.061	0	0.061
95% UCL (Student's-t) *						0.5	0.275	0.275	0.25	0.275	0.275	0.25	0.275
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

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	Organochlorine Pesticides												
	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
	µg/L	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	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										0.008			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters										0.004			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2

Statistics

Statistics	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
Number of Results	6	6	6	6	5	6	6	6	6	6	6	5	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.22	0.22	0.22	0.85	0.25	0.22	0.22	0.22	0.22	0.22	0.22	0.25	0.22
Median Concentration *	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0.061	0.061	0.061	0.37	0	0.061	0.061	0.061	0.061	0.061	0.061	0	0.061
95% UCL (Student's-t) *	0.275	0.275	0.275	1.152	0.25	0.275	0.275	0.275	0.275	0.275	0.275	0.25	0.275
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos
	µg/L	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	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.009					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters								0.009					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2

Statistics

Statistics	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos
Number of Results	**6**	**6**	**6**	**6**	**6**	**5**	**5**	**6**	**6**	**1**	**5**	**6**	**6**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.22**	**0.22**	**0.85**	**0.22**	**0.22**	**0.25**	**0.25**	**0.22**	**0.22**		**0.25**	**0.22**	**0.22**
Median Concentration *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0.061**	**0.061**	**0.37**	**0.061**	**0.061**	**0**	**0**	**0.061**	**0.061**		**0**	**0.061**	**0.061**
95% UCL (Student's-t) *	**0.275**	**0.275**	**1.152**	**0.275**	**0.275**	**0.25**	**0.25**	**0.275**	**0.275**		**0.25**	**0.275**	**0.275**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos
	Organophosphorous Pesticides												
	µg/L	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-

Statistics

Statistics	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos
Number of Results	6	1	6	1	6	6	6	1	6	5	6	1	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.2	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<2	<2	<2	<0.2	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.22		0.22		0.22	0.22	0.22		0.85	1	0.85		0.25
Median Concentration *	0.25	0.1	0.25	0.1	0.25	0.25	0.25	0.1	1	1	1	0.1	0.25
Standard Deviation *	0.061		0.061		0.061	0.061	0.061		0.37	0	0.37		0
95% UCL (Student's-t) *	0.275		0.275		0.275	0.275	0.275		1.152	1	1.152		0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Ronnel (µg/L)	Pesticides: Pirimphos-ethyl (µg/L)	Perfluoroalkyl Sulfonic Acids: Perfluorobutane sulfonic acid (PFBS) (µg/L)	Perfluorohexane sulfonic acid (PFHxS) (µg/L)	Perfluorooctanesulfonic acid (PFOS) (µg/L)	Sum of PFHxS and PFOS (µg/L)	Perfluoroalkyl Carboxylic Acid: Perfluorobutanoic acid (PFBA) (µg/L)	Perfluoropentanoic acid (PFPeA) (µg/L)	Perfluorohexanoic acid (PFHxA) (µg/L)	Perfluoroheptanoic acid (PFHpA) (µg/L)	Perfluorooctanoic acid (PFOA) (µg/L)	Fluorotelomer: 4:2 Fluorotelomer sulfonic acid (4:2 FTS) (µg/L)	6:2 Fluorotelomer sulfonic acid (6:2 FTS) (µg/L)
EQL							0.2	0.5	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Interim Marine 95%											0.13						220		
PFAS NEMP 2020 Interim Marine 99%											0.00023						19		
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	-	<0.5	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	-	<0.5	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	-	<0.5	0.07	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	-	<0.5	<0.02	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	-	<0.5	<0.02	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.2	-	-	0.01	0.02	0.03	-	-	-	-	<0.01	-	<0.01

Statistics

Statistic	Ronnel	Pirimphos-ethyl	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS
Number of Results	1	5	5	6	6	6	5	5	5	5	6	5	6
Number of Detects	0	0	1	3	3	3	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.5	<0.02	0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.01
Minimum Detect	ND	ND	0.07	0.01	0.02	0.03	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.5	0.07	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
Maximum Detect	ND	ND	0.07	0.01	0.02	0.03	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		0.25	0.022	0.0075	0.012	0.018	0.05	0.01	0.01	0.01	0.005	0.025	0.022
Median Concentration *	0.1	0.25	0.01	0.0075	0.0125	0.0175	0.05	0.01	0.01	0.01	0.005	0.025	0.025
Standard Deviation *		0	0.027	0.0027	0.0082	0.014	0	0	0	0	0	0	0.0082
95% UCL (Student's-t) *		0.25	0.0476	0.00975	0.0193	0.0288	0.05	0.01	0.01	0.01	0.005	0.025	0.0284
% of Detects	0	0	20	50	50	50	0	0	0	0	0	0	0
% of Non-Detects	100	100	80	50	50	50	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T6. Groundwater Analytical Results – Clyde Zone 3 – Shallow Aquifer – Marine Trigger Criteria

	Sulfonic Acids		PFAS Totals			Solvents					
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L
EQL	0.02	0.05	0.01	0.01	0.01	50	50	50	5	0.001	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
ES2426006013	CZ3/Shallow	SMW_ENV039_W		07 Aug 2024	Water	Normal	<0.05	<0.05	<0.01	-	-	<50	<50	<50	<5	-	<50
ES2426147002	CZ3/Shallow	GALC-MW18		08 Aug 2024	Water	Normal	<0.05	<0.05	<0.01	-	-	<50	<50	<50	<5	-	<50
ES2427457001	CZ3/Shallow	SMW_ENV009_W		19 Aug 2024	Water	Normal	<0.05	<0.05	0.07	-	-	<50	<50	<50	<5	-	<50
ES2427457003	CZ3/Shallow	SMW_BH057_S		19 Aug 2024	Water	Normal	<0.05	<0.05	0.03	-	-	<50	<50	<50	<5	-	<50
ES2427457004	CZ3/Shallow	QC05	SMW_BH057_S	19 Aug 2024	Water	Field_D	<0.05	<0.05	0.03	-	-	<50	<50	<50	<5	-	<50
359802-1	CZ3/Shallow	QC06	SMW_BH057_S	19 Aug 2024	Water	Interlab_D	<0.02	-	-	0.02	0.03	-	-	-	-	<0.001	-

Statistics	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
Number of Results	**6**	**5**	**5**	**1**	**1**	**5**	**5**	**5**	**5**	**1**	**5**
Number of Detects	**0**	**0**	**3**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.02**	**<0.05**	**<0.01**	**0.02**	**0.03**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<50**
Minimum Detect	**ND**	**ND**	**0.03**	**0.02**	**0.03**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**<0.05**	**0.07**	**0.02**	**0.03**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<50**
Maximum Detect	**ND**	**ND**	**0.07**	**0.02**	**0.03**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.023**	**0.025**	**0.028**			**25**	**25**	**25**	**2.5**		**25**
Median Concentration *	**0.025**	**0.025**	**0.03**	**0.02**	**0.03**	**25**	**25**	**25**	**2.5**	**0.0005**	**25**
Standard Deviation *	**0.0061**	**0**	**0.027**			**0**	**0**	**0**	**0**		**0**
95% UCL (Student's-t) *	**0.0275**	**0.025**	**0.0534**			**25**	**25**	**25**	**2.5**		**25**
% of Detects	**0**	**0**	**60**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**40**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T7. Groundwater Analytical Results – Clyde Zone 3 – Deep Aquifer – Marine Trigger Criteria

	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
Physico-Chemical & Major Ions												
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)			5.8			5,363						
ANZECC 2000 SE Aust - Estuaries			7-8.5									
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	68.6	7.05	7.43	17,100	3.9	12,000	5,860	282	<1	<1	831	831
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	8.9	6.55	7.11	8,030	6.3	4,550	2,110	257	<1	<1	538	538

Statistics

	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**0**	**0**	**2**	**2**
Minimum Concentration	**8.9**	**6.55**	**7.11**	**8,030**	**3.9**	**4,550**	**2,110**	**257**	**<1**	**<1**	**538**	**538**
Minimum Detect	**8.9**	**6.55**	**7.11**	**8,030**	**3.9**	**4,550**	**2,110**	**257**	**ND**	**ND**	**538**	**538**
Maximum Concentration	**68.6**	**7.05**	**7.43**	**17,100**	**6.3**	**12,000**	**5,860**	**282**	**<1**	**<1**	**831**	**831**
Maximum Detect	**68.6**	**7.05**	**7.43**	**17,100**	**6.3**	**12,000**	**5,860**	**282**	**ND**	**ND**	**831**	**831**
Average Concentration *	**39**	**6.8**	**7.3**	**12,565**	**5.1**	**8,275**	**3,985**	**270**	**0.5**	**0.5**	**684**	**684**
Median Concentration *	**38.75**	**6.8**	**7.27**	**12,565**	**5.1**	**8,275**	**3,985**	**269.5**	**0.5**	**0.5**	**684.5**	**684.5**
Standard Deviation *	**42**	**0.35**	**0.23**	**6,413**	**1.7**	**5,268**	**2,652**	**18**	**0**	**0**	**207**	**207**
95% UCL (Student's-t) *	**227.2**	**8.378**	**8.28**	**41,198**	**12.68**	**31,794**	**15,823**	**348.4**	**0.5**	**0.5**	**1,609**	**1,609**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

									Nutr			
	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	1	1	1	0.01	0.01	0.01	1	0.01	0.1	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.91			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											2.4	
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)									1.677			
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	241	428	2,810	58	188	171	4.69	2,360	0.66	9.1	<0.01	<0.01
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	198	159	1,130	30	75.6	72.9	1.84	1,150	0.71	1.0	<0.01	<0.01

Statistics

	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**0**	**0**
Minimum Concentration	**198**	**159**	**1,130**	**30**	**75.6**	**72.9**	**1.84**	**1,150**	**0.66**	**1**	**<0.01**	**<0.01**
Minimum Detect	**198**	**159**	**1,130**	**30**	**75.6**	**72.9**	**1.84**	**1,150**	**0.66**	**1**	**ND**	**ND**
Maximum Concentration	**241**	**428**	**2,810**	**58**	**188**	**171**	**4.69**	**2,360**	**0.71**	**9.1**	**<0.01**	**<0.01**
Maximum Detect	**241**	**428**	**2,810**	**58**	**188**	**171**	**4.69**	**2,360**	**0.71**	**9.1**	**ND**	**ND**
Average Concentration *	**220**	**294**	**1,970**	**44**	**132**	**122**	**3.3**	**1,755**	**0.68**	**5**	**0.005**	**0.005**
Median Concentration *	**219.5**	**293.5**	**1,970**	**44**	**131.8**	**121.95**	**3.265**	**1,755**	**0.685**	**5.05**	**0.005**	**0.005**
Standard Deviation *	**30**	**190**	**1,188**	**20**	**79**	**69**	**2**	**856**	**0.035**	**5.7**	**0**	**0**
95% UCL (Student's-t) *	**355.2**	**1,143**	**7,274**	**132.4**	**486.6**	**431.6**	**12.26**	**5,575**	**0.843**	**30.62**	**0.005**	**0.005**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							ients				Metals							
							Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L
EQL							0.01	0.1	0.01	0.01	0.01	1	0.1	0.01	0.01	1	1	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													5.5	0.0044	0.027		1.3	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
PFAS NEMP 2020 Interim Marine 95%																		
PFAS NEMP 2020 Interim Marine 99%																		
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)								2.06	0.05	0.03		7				5	87	
ANZECC 2000 SE Aust - Estuaries								0.3		0.005								
NEPM 2013 Table 1C GILs, Marine Waters													0.7	0.0044	0.027		1.3	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**												
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	<0.01	9.1	2.28	<0.01	0.05	2	<0.1	<0.01	<0.01	<1	<1	2.32
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	<0.01	1.0	0.05	<0.01	-	<1	<0.1	<0.01	<0.01	<1	<1	1.46

Statistics

Number of Results	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**2**	**2**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**
Minimum Concentration	**<0.01**	**1**	**0.05**	**<0.01**	**0.05**	**<1**	**<0.1**	**<0.01**	**<0.01**	**<1**	**<1**	**1.46**
Minimum Detect	**ND**	**1**	**0.05**	**ND**	**0.05**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**1.46**
Maximum Concentration	**<0.01**	**9.1**	**2.28**	**<0.01**	**0.05**	**2**	**<0.1**	**<0.01**	**<0.01**	**<1**	**<1**	**2.32**
Maximum Detect	**ND**	**9.1**	**2.28**	**ND**	**0.05**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.32**
Average Concentration *	**0.005**	**5**	**1.2**	**0.005**		**1.2**	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**1.9**
Median Concentration *	**0.005**	**5.05**	**1.165**	**0.005**	**0.05**	**1.25**	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**1.89**
Standard Deviation *	**0**	**5.7**	**1.6**	**0**		**1.1**	**0**	**0**	**0**	**0**	**0**	**0.61**
95% UCL (Student's-t) *	**0.005**	**30.62**	**8.205**	**0.005**		**5.985**	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**4.605**
% of Detects	**0**	**100**	**100**	**0**	**100**	**50**	**0**	**0**	**0**	**0**	**0**	**100**
% of Non-Detects	**100**	**0**	**0**	**100**	**0**	**50**	**100**	**100**	**100**	**100**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T7. Groundwater Analytical Results – Clyde Zone 3 – Deep Aquifer – Marine Trigger Criteria

						BTEX						
	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.001	0.1	1	5	1	2	2	2	2	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	4.4		0.4	70	8	700	180	80				70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)		0.496		73	266							
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters	4.4		0.1	7	15	500						50

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<1	0.483	<0.1	2	<5	<1	<2	<2	<2	<2	<2	<1.0
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<1	0.439	<0.1	5	<5	<1	<2	<2	<2	<2	<2	<1.0

Statistics

Statistics	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**0.439**	**<0.1**	**2**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Minimum Detect	**ND**	**0.439**	**ND**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**0.483**	**<0.1**	**5**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Maximum Detect	**ND**	**0.483**	**ND**	**5**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**0.46**	**0.05**	**3.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Median Concentration *	**0.5**	**0.461**	**0.05**	**3.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Standard Deviation *	**0**	**0.031**	**0**	**2.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.5**	**0.6**	**0.05**	**12.97**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
% of Detects	**0**	**100**	**0**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**0**	**100**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

			TRH									
	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
	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	5	1	20	20	100	100	100	100	100	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70											30
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters	50											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	<5	<1	<20	<20	150	150	<100	<100	150	<5	<5	<5
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5

Statistics

Statistic	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**150**	**150**	**ND**	**ND**	**150**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<1**	**<20**	**<20**	**150**	**150**	**<100**	**<100**	**150**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**150**	**150**	**ND**	**ND**	**150**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**0.5**	**10**	**10**	**100**	**100**	**50**	**50**	**100**	**2.5**	**2.5**	**2.5**
Median Concentration *	**2.5**	**0.5**	**10**	**10**	**100**	**100**	**50**	**50**	**100**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**71**	**71**	**0**	**0**	**71**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**0.5**	**10**	**10**	**415.7**	**415.7**	**50**	**50**	**415.7**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**50**	**50**	**0**	**0**	**50**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**50**	**50**	**100**	**100**	**50**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	MAH						Halogenated Hydrocarbons					
	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
	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	5	5	5	5	5	5	5	50	50	5	50	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5

Statistics

Statistics	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
	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	5	5	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	270	400	1,900		700				1,900	900	1,100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters			1,900									

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistic	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
Chlorinated Hydrocarbons												
	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	5	5	5	5	50	5	50	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			240			770						330
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5

Statistics

Statistic	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5
Median Concentration *	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Halogenated Benzenes							
	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
	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	5	5	5	50	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70			100		80						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters						20						

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistic	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	2.5	2.5	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
				VOCs								
	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	5	0.5	5	5	5	1	1	1	1	0.5	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	55	0.1			80			0.4		0.2		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<5	<0.5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<5	<0.5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0

Statistics

Statistics	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<0.5	<5	<5	<5	<1	<1	<1	<1	<0.5	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<0.5	<5	<5	<5	<1	<1	<1	<1	<0.5	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	0.25	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
Median Concentration *	2.5	0.25	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	0.25	2.5	2.5	2.5	0.5	0.5	0.5	0.5	0.25	0.5	0.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							PAH											
							Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL							1	1	1	1	1	1	1	1	0.0005	0.5	20	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										1.4			2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
PFAS NEMP 2020 Interim Marine 95%																		
PFAS NEMP 2020 Interim Marine 99%																		
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																		
ANZECC 2000 SE Aust - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**												
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	80
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50

Statistics

Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.5**	**<20**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**80**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.5**	**<20**	**80**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**80**
Average Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**10**	**52**
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**10**	**52.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39**
95% UCL (Student's-t) *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**10**	**226.1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**50**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T7. Groundwater Analytical Results – Clyde Zone 3 – Deep Aquifer – Marine Trigger Criteria

	TPH			PCBs								
	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
	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	100	50	50	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	160	<50	240	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<50**	**<50**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**160**	**ND**	**240**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**160**	**<50**	**240**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**160**	**ND**	**240**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**105**	**25**	**132**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**105**	**25**	**132.5**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**78**	**0**	**152**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**452.3**	**25**	**811.2**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**50**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**50**	**100**	**50**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Organochlorine Pesticides											
	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
	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	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.008			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters									0.004			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

				Organophospho								
	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
	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	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.009				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters								0.009				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	rous Pesticides									Pesticides	Perfluoroalkyl	
	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	0.5	0.02	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	<0.01
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	<0.01

Statistics

Statistics	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	<0.02	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	<0.02	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	0.25	0.01	0.005
Median Concentration *	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	0.25	0.01	0.005
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	0.25	0.01	0.005
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T7. Groundwater Analytical Results – Clyde Zone 3 – Deep Aquifer – Marine Trigger Criteria

	Sulfonic Acids		Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals
	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)
	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	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%	0.13						220					
PFAS NEMP 2020 Interim Marine 99%	0.00023						19					
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
ES2426147001	CZ3/Deep	GALC-MW16_W		08 Aug 2024	Water	Normal	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
ES2427457002	CZ3/Deep	SMW_BH057_W		19 Aug 2024	Water	Normal	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01

Statistics

Statistics	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
Median Concentration *	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Solvents				
							Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
							µg/L	µg/L	µg/L	µg/L	µg/L
EQL							50	50	50	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**					
ES2426147001	**CZ3/Deep**	**GALC-MW16_W**		**08 Aug 2024**	**Water**	**Normal**	<50	<50	<50	<5	<50
ES2427457002	**CZ3/Deep**	**SMW_BH057_W**		**19 Aug 2024**	**Water**	**Normal**	<50	<50	<50	<5	<50

Statistics

Statistic	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
Number of Results	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<50**	**<50**	**<5**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<50**	**<50**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**25**	**25**	**25**	**2.5**	**25**
Median Concentration *	**25**	**25**	**25**	**2.5**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**25**	**25**	**25**	**2.5**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

	NA				Amino Aliphatics						
	Ammonium as N	Atrazine Desispropyl	Atrazine-desethyl	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)
	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mV	-	-
EQL	0.01	0.0001	0.1	2	2	2	2	2	0.1	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											5.5
ANZECC 2000 SE Aust - Estuaries											7-8.5
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Ammonium as N	Atrazine Desispropyl	Atrazine-desethyl	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	66.2	6.03	6.30
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	2.83	<0.0001	<0.1	-	<2	<2	<2	<2	-37.4	7.31	7.77
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	7.30	<0.0001	<0.1	-	<2	<2	<2	<2	-21.2	6.78	7.33
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	-	<0.0001	<0.1	-	<2	<2	<2	<2	-	-	-
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	-	-	-	<2	-	<5	<5	-	-	-	-

Statistics

Statistics	Ammonium as N	Atrazine Desispropyl	Atrazine-desethyl	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)
Number of Results	**2**	**3**	**3**	**1**	**3**	**4**	**4**	**3**	**3**	**3**	**3**
Number of Detects	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**3**
Minimum Concentration	**2.83**	**<0.0001**	**<0.1**	**<2**	**<2**	**<2**	**<2**	**<2**	**-37.4**	**6.03**	**6.3**
Minimum Detect	**2.83**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**-37.4**	**6.03**	**6.3**
Maximum Concentration	**7.3**	**<0.0001**	**<0.1**	**<2**	**<2**	**<5**	**<5**	**<2**	**66.2**	**7.31**	**7.77**
Maximum Detect	**7.3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**66.2**	**7.31**	**7.77**
Average Concentration *	**5.1**	**0.00005**	**0.05**		**1**	**1.4**	**1.4**	**1**	**2.5**	**6.7**	**7.1**
Median Concentration *	**5.065**	**0.00005**	**0.05**	**1**	**1**	**1**	**1**	**1**	**-21.2**	**6.78**	**7.33**
Standard Deviation *	**3.2**	**0**	**0**		**0**	**0.75**	**0.75**	**0**	**56**	**0.64**	**0.75**
95% UCL (Student's-t) *	**19.18**	**0.00005**	**0.05**		**1**	**2.258**	**2.258**	**1**	**96.48**	**7.791**	**8.405**
% of Detects	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**
% of Non-Detects	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

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							Physico-Chemical & Major Ions										
							Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)
							µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							1	0.1	10	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)									22,640								
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	**CZ5a/Shallow**	**CZ5_MW09**		**06 Aug 2024**	**Water**	**Normal**	11,800	5.7	7,410	4,060	538	<1	<1	112	112	81	208
ES2426006001	**CZ5a/Shallow**	**QC01**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Field_D**	-	-	-	-	-	-	-	-	-	-	-
358929-1	**CZ5a/Shallow**	**QC02**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	**CZ5a/Shallow**	**CZ5a_MW102**		**02 Sep 2024**	**Water**	**Normal**	14,600	5.9	9,560	4,120	342	<1	<1	822	822	222	303
ES2428614002	**CZ5a/Shallow**	**CZ5a_MW103**		**02 Sep 2024**	**Water**	**Normal**	33,600	7.0	23,000	11,000	343	<1	<1	768	768	364	742
ES2428614003	**CZ5a/Shallow**	**QC100**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Field_D**	-	-	-	-	-	-	-	-	-	-	-
360800-1	**CZ5a/Shallow**	**QC200**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**3**	**3**	**0**	**0**	**3**	**3**	**3**	**3**
Minimum Concentration	**11,800**	**5.7**	**7,410**	**4,060**	**342**	**<1**	**<1**	**112**	**112**	**81**	**208**
Minimum Detect	**11,800**	**5.7**	**7,410**	**4,060**	**342**	**ND**	**ND**	**112**	**112**	**81**	**208**
Maximum Concentration	**33,600**	**7**	**23,000**	**11,000**	**538**	**<1**	**<1**	**822**	**822**	**364**	**742**
Maximum Detect	**33,600**	**7**	**23,000**	**11,000**	**538**	**ND**	**ND**	**822**	**822**	**364**	**742**
Average Concentration *	**20,000**	**6.2**	**13,323**	**6,393**	**408**	**0.5**	**0.5**	**567**	**567**	**222**	**418**
Median Concentration *	**14,600**	**5.9**	**9,560**	**4,120**	**343**	**0.5**	**0.5**	**768**	**768**	**222**	**303**
Standard Deviation *	**11,861**	**0.7**	**8,449**	**3,990**	**113**	**0**	**0**	**395**	**395**	**142**	**285**
95% UCL (Student's-t) *	**39,996**	**7.38**	**27,567**	**13,119**	**598**	**0.5**	**0.5**	**1,234**	**1,234**	**460.9**	**897.9**
% of Detects	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

													Amino Aromatics				
							Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline
							mg/L	mg/L	meq/L	meq/L	%	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	1	0.01	0.01	0.01	1	2	5	5	4	4
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	**CZ5a/Shallow**	**CZ5_MW09**		**06 Aug 2024**	**Water**	**Normal**	2,050	5	128	110	7.34	1,060	-	-	-	-	-
ES2426006001	**CZ5a/Shallow**	**QC01**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Field_D**	-	-	-	-	-	-	-	-	-	-	-
358929-1	**CZ5a/Shallow**	**QC02**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	**CZ5a/Shallow**	**CZ5a_MW102**		**02 Sep 2024**	**Water**	**Normal**	2,120	49	140	129	3.82	1,800	<2	-	-	<4	<4
ES2428614002	**CZ5a/Shallow**	**CZ5a_MW103**		**02 Sep 2024**	**Water**	**Normal**	6,720	198	333	376	6.18	3,960	<2	-	-	<4	<4
ES2428614003	**CZ5a/Shallow**	**QC100**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Field_D**	-	-	-	-	-	-	<2	-	-	<4	<4
360800-1	**CZ5a/Shallow**	**QC200**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	<5	<5	<5	-	<5

Statistics

	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**4**	**1**	**1**	**3**	**4**
Number of Detects	**3**	**3**	**3**	**3**	**3**	**3**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**2,050**	**5**	**128**	**110**	**3.82**	**1,060**	**<2**	**<5**	**<5**	**<4**	**<4**
Minimum Detect	**2,050**	**5**	**128**	**110**	**3.82**	**1,060**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**6,720**	**198**	**333**	**376**	**7.34**	**3,960**	**<5**	**<5**	**<5**	**<4**	**<5**
Maximum Detect	**6,720**	**198**	**333**	**376**	**7.34**	**3,960**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**3,630**	**84**	**200**	**205**	**5.8**	**2,273**	**1.4**			**2**	**2.1**
Median Concentration *	**2,120**	**49**	**140**	**129**	**6.18**	**1,800**	**1**	**2.5**	**2.5**	**2**	**2**
Standard Deviation *	**2,676**	**101**	**115**	**148**	**1.8**	**1,507**	**0.75**			**0**	**0.25**
95% UCL (Student's-t) *	**8,142**	**254.5**	**394.3**	**455.2**	**8.804**	**4,814**	**2.258**			**2**	**2.419**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Anilines					Nutrients					
							3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)
							µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												0.91					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														2.4			
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)												3.475					6.14
ANZECC 2000 SE Aust - Estuaries																	0.3
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	0.07	0.3	<0.01	<0.01	<0.01	0.3
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<4	<2	<2	<2	<2	2.85	4.1	<0.01	0.03	<0.01	4.1
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<4	<2	<2	<2	<2	7.31	8.5	<0.01	<0.01	<0.01	8.5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<4	<2	<2	<2	<2	-	-	-	-	-	-
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<5	<5	<5	<5	<5	-	-	-	-	-	-

Statistics

Statistic	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)
Number of Results	**4**	**4**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**1**	**0**	**3**
Minimum Concentration	**<4**	**<2**	**<2**	**<2**	**<2**	**0.07**	**0.3**	**<0.01**	**<0.01**	**<0.01**	**0.3**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**0.07**	**0.3**	**ND**	**0.03**	**ND**	**0.3**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**7.31**	**8.5**	**<0.01**	**0.03**	**<0.01**	**8.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**7.31**	**8.5**	**ND**	**0.03**	**ND**	**8.5**
Average Concentration *	**2.1**	**1.4**	**1.4**	**1.4**	**1.4**	**3.4**	**4.3**	**0.005**	**0.013**	**0.005**	**4.3**
Median Concentration *	**2**	**1**	**1**	**1**	**1**	**2.85**	**4.1**	**0.005**	**0.005**	**0.005**	**4.1**
Standard Deviation *	**0.25**	**0.75**	**0.75**	**0.75**	**0.75**	**3.7**	**4.1**	**0**	**0.014**	**0**	**4.1**
95% UCL (Student's-t) *	**2.419**	**2.258**	**2.258**	**2.258**	**2.258**	**9.567**	**11.22**	**0.005**	**0.0377**	**0.005**	**11.22**
% of Detects	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**33**	**0**	**100**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**67**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

									Metals								
							Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
							mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L
EQL							0.01	0.01	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											5.5	0.0044	0.027	0.027		1.3	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)							0.15			8						8	
ANZECC 2000 SE Aust - Estuaries								0.005									
NEPM 2013 Table 1C GILs, Marine Waters											0.7	0.0044	0.027	0.027		1.3	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	**CZ5a/Shallow**	**CZ5_MW09**		**06 Aug 2024**	**Water**	**Normal**	<0.01	<0.01	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	0.17
ES2426006001	**CZ5a/Shallow**	**QC01**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Field_D**	-	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	<0.05
358929-1	**CZ5a/Shallow**	**QC02**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Interlab_D**	-	-	-	<1	<0.1	<0.005	<0.005	-	<1	1	0.11
ES2428614001	**CZ5a/Shallow**	**CZ5a_MW102**		**02 Sep 2024**	**Water**	**Normal**	0.34	<0.01	0.04	10	<0.1	<0.01	-	<0.01	<1	<1	7.59
ES2428614002	**CZ5a/Shallow**	**CZ5a_MW103**		**02 Sep 2024**	**Water**	**Normal**	0.02	<0.01	<0.10[#1]	<10[#1]	<1.0[#1]	<0.01	-	<0.01	<10[#1]	<10[#1]	12.1
ES2428614003	**CZ5a/Shallow**	**QC100**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Field_D**	0.03	-	<0.10[#1]	<10[#1]	<1.0[#1]	-	-	-	<10[#1]	<10[#1]	12.6
360800-1	**CZ5a/Shallow**	**QC200**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Interlab_D**	-	-	0.01	4	<0.1	-	-	-	<1	1	15

Statistics

Number of Results	**4**	**3**	**6**	**7**	**7**	**5**	**1**	**4**	**7**	**7**	**7**
Number of Detects	**3**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**6**
Minimum Concentration	**<0.01**	**<0.01**	**0.01**	**<1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**1**	**<0.05**
Minimum Detect	**0.02**	**ND**	**0.01**	**4**	**ND**	**ND**	**ND**	**ND**	**ND**	**1**	**0.11**
Maximum Concentration	**0.34**	**<0.01**	**<0.1**	**10**	**<1**	**<0.01**	**<0.005**	**<0.01**	**<10**	**<10**	**15**
Maximum Detect	**0.34**	**ND**	**0.04**	**10**	**ND**	**ND**	**ND**	**ND**	**ND**	**1**	**15**
Average Concentration *	**0.099**	**0.005**	**0.027**	**3.6**	**0.18**	**0.0045**		**0.005**	**1.8**	**1.9**	**6.8**
Median Concentration *	**0.025**	**0.005**	**0.025**	**4**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**1**	**7.59**
Standard Deviation *	**0.16**	**0**	**0.022**	**3.5**	**0.22**	**0.0011**		**0**	**2.2**	**2.1**	**6.6**
95% UCL (Student's-t) *	**0.288**	**0.005**	**0.045**	**6.22**	**0.34**	**0.00557**		**0.005**	**3.398**	**3.478**	**11.67**
% of Detects	**75**	**0**	**33**	**29**	**0**	**0**	**0**	**0**	**0**	**29**	**86**
% of Non-Detects	**25**	**100**	**67**	**71**	**100**	**100**	**100**	**100**	**100**	**71**	**14**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							BTEX				
	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)
	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.001	0.05	1	0.05	1	1	1	1	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	4.4		0.4	70		8	700	180	80		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)		1.4		20	0.15	85					
ANZECC 2000 SE Aust - Estuaries					0.03						
NEPM 2013 Table 1C GILs, Marine Waters	4.4		0.1	7		15	500				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<1	0.121	<0.1	8	-	9	<1	<2	<2	<2	<2
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<1	0.118	<0.1	8	-	10	<1	<2	<2	<2	<2
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	0.18	<0.05	12	<0.05	14	<1	<1	<1	<2	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<1	1.14	<0.1	13	-	24	<1	6	<2	<2	<2
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<10[#1]	0.408	<0.1	<10[#1]	-	<50[#1]	<1	<2	<2	<2	<2
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<10[#1]	0.402	<0.1	<10[#1]	-	<50[#1]	<1	<2	<2	<2	<2
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	0.46	<0.05	2	<0.05	3	<1	<1	<1	<2	<1

Statistics

Statistics	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)
Number of Results	**7**	**7**	**7**	**7**	**2**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**7**	**0**	**5**	**0**	**5**	**0**	**1**	**0**	**0**	**0**
Minimum Concentration	**<1**	**0.118**	**<0.05**	**2**	**<0.05**	**3**	**<1**	**<1**	**<1**	**<2**	**<1**
Minimum Detect	**ND**	**0.118**	**ND**	**2**	**ND**	**3**	**ND**	**6**	**ND**	**ND**	**ND**
Maximum Concentration	**<10**	**1.14**	**<0.1**	**13**	**<0.05**	**<50**	**<1**	**6**	**<2**	**<2**	**<2**
Maximum Detect	**ND**	**1.14**	**ND**	**13**	**ND**	**24**	**ND**	**6**	**ND**	**ND**	**ND**
Average Concentration *	**1.8**	**0.4**	**0.043**	**7.6**	**0.025**	**16**	**0.5**	**1.6**	**0.86**	**1**	**0.86**
Median Concentration *	**0.5**	**0.402**	**0.05**	**8**	**0.025**	**14**	**0.5**	**1**	**1**	**1**	**1**
Standard Deviation *	**2.2**	**0.36**	**0.012**	**4**	**0**	**9**	**0**	**2**	**0.24**	**0**	**0.24**
95% UCL (Student's-t) *	**3.398**	**0.665**	**0.0518**	**10.47**	**0.025**	**22.31**	**0.5**	**3.016**	**1.036**	**1**	**1.036**
% of Detects	**0**	**100**	**0**	**71**	**0**	**71**	**0**	**14**	**0**	**0**	**0**
% of Non-Detects	**100**	**0**	**100**	**29**	**100**	**29**	**100**	**86**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

					TRH						
	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (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
EQL	2	0.1	1	1	10	10	50	50	100	100	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		70	70								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters		50	50								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<2	<1.0	<5	6	<20	<20	240	240	430	<100	670
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50

Statistics

Statistics	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)
Number of Results	**5**	**7**	**7**	**5**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**1**	**0**	**1**
Minimum Concentration	**<2**	**<0.1**	**<1**	**<1**	**<10**	**<10**	**<50**	**<50**	**<100**	**<100**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**6**	**ND**	**ND**	**240**	**240**	**430**	**ND**	**670**
Maximum Concentration	**<2**	**<1**	**<5**	**6**	**<20**	**<20**	**240**	**240**	**430**	**<100**	**670**
Maximum Detect	**ND**	**ND**	**ND**	**6**	**ND**	**ND**	**240**	**240**	**430**	**ND**	**670**
Average Concentration *	**1**	**0.37**	**1.9**	**1.6**	**8.6**	**8.6**	**70**	**70**	**104**	**50**	**131**
Median Concentration *	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**
Standard Deviation *	**0**	**0.22**	**0.98**	**2.5**	**2.4**	**2.4**	**76**	**76**	**144**	**0**	**238**
95% UCL (Student's-t) *	**1**	**0.533**	**2.645**	**3.945**	**10.36**	**10.36**	**125.7**	**125.7**	**209.8**	**50**	**306.1**
% of Detects	**0**	**0**	**0**	**20**	**0**	**0**	**14**	**14**	**14**	**0**	**14**
% of Non-Detects	**100**	**100**	**100**	**80**	**100**	**100**	**86**	**86**	**86**	**100**	**86**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

	MAH									Haloge	
	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	1	1	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			30								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10

Statistics

Statistics	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
Number of Results	7	7	7	7	7	7	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	19
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25
Standard Deviation *	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	9.8
95% UCL (Student's-t) *	2.645	2.645	2.645	2.645	2.645	2.645	2.645	2.645	2.645	2.645	26.45
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							nated Hydrocarbons										
							Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							10	5	10	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											270	400	1,900		700		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters													1,900				
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistic	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane
Number of Results	**7**	**5**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**19**	**2.5**	**19**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**
Median Concentration *	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**9.8**	**0**	**9.8**	**0.98**	**0.98**	**0.98**	**0.98**	**0.98**	**0.98**	**0.98**	**0.98**
95% UCL (Student's-t) *	**26.45**	**2.5**	**26.45**	**2.645**	**2.645**	**2.645**	**2.645**	**2.645**	**2.645**	**2.645**	**2.645**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

	Chlorinated Hydrocarbons										
	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	1	1	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		1,900	900	1,100					240		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10

Statistics

Statistics	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane
Number of Results	7	7	7	7	7	2	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.9	1.9	1.9	1.9	1.9	0.5	1.9	1.9	1.9	1.9	19
Median Concentration *	2.5	2.5	2.5	2.5	2.5	0.5	2.5	2.5	2.5	2.5	25
Standard Deviation *	0.98	0.98	0.98	0.98	0.98	0	0.98	0.98	0.98	0.98	9.8
95% UCL (Student's-t) *	2.645	2.645	2.645	2.645	2.645	0.5	2.645	2.645	2.645	2.645	26.45
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	10	1	1	1	1	5	2	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	770								330	70	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<5	<50	<5	<5	<5	<5	-	-	<5	<5	<5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<10	<1	<1	<1	<1	-	-	<1	<1	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	<10	<1	<1	<1	<1	<5	<2	<1	<1	<1

Statistics

Statistics	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene
Number of Results	7	7	7	7	7	7	4	4	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<10	<1	<1	<1	<1	<5	<2	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<50	<5	<5	<5	<5	<10	<2	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.9	19	1.9	1.9	1.9	1.3	4.4	1	1.9	1.9	1.9
Median Concentration *	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5
Standard Deviation *	0.98	9.8	0.98	0.98	0.98	0.86	1.2	0	0.98	0.98	0.98
95% UCL (Student's-t) *	2.645	26.45	2.645	2.645	2.645	1.917	5.846	1	2.645	2.645	2.645
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

									Halogenated Benzenes								
							trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	10	4	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								100			80						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters											20						
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<5	<50	-	<5	<5	<5	<5	<5	<5	<5	<5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<5	<50	-	<5	<5	<5	<5	<5	<5	<5	<5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<10	-	<1	<1	<1	<1	<1	<1	<1	<1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistic	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
Number of Results	7	7	1	7	7	7	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<50	<4	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.9	19		1.9	1.3	1.3	1.3	1.3	1.9	1.9	1.9
Median Concentration *	2.5	25	2	2.5	1	1	1	1	2.5	2.5	2.5
Standard Deviation *	0.98	9.8		0.98	0.86	0.86	0.86	0.86	0.98	0.98	0.98
95% UCL (Student's-t) *	2.645	26.45		2.645	1.917	1.917	1.917	1.917	2.645	2.645	2.645
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether
				VOCs							
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.2	2	5	5	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	55	0.1	2			80					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<5	<0.5	-	<5	<5	<5	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<5	<0.5	-	<5	<5	<5	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<1	<0.2	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<5	<0.5	<2	<5	<5	<5	-	<2	<2	<2	<2
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<5	<0.5	<2	<5	<5	<5	-	<2	<2	<2	<2
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<5	<0.5	<2	<5	<5	<5	-	<2	<2	<2	<2
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	<0.2	<2	-	-	<2	<2	-	<5	<5	<5

Statistics

Statistics	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether
Number of Results	**7**	**7**	**4**	**5**	**5**	**6**	**1**	**3**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<0.2**	**<2**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1.9**	**0.21**	**1**	**2.5**	**2.5**	**2.2**		**1**	**1.4**	**1.4**	**1.4**
Median Concentration *	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *	**0.98**	**0.073**	**0**	**0**	**0**	**0.61**		**0**	**0.75**	**0.75**	**0.75**
95% UCL (Student's-t) *	**2.645**	**0.261**	**1**	**2.5**	**2.5**	**2.754**		**1**	**2.258**	**2.258**	**2.258**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							SVOCs										
							4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							2	2	5	2	2	5	2	2	10	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	**CZ5a/Shallow**	**CZ5_MW09**		**06 Aug 2024**	**Water**	**Normal**	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	**CZ5a/Shallow**	**QC01**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Field_D**	-	-	-	-	-	-	-	-	-	-	-
358929-1	**CZ5a/Shallow**	**QC02**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	**CZ5a/Shallow**	**CZ5a_MW102**		**02 Sep 2024**	**Water**	**Normal**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2
ES2428614002	**CZ5a/Shallow**	**CZ5a_MW103**		**02 Sep 2024**	**Water**	**Normal**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2
ES2428614003	**CZ5a/Shallow**	**QC100**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Field_D**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2
360800-1	**CZ5a/Shallow**	**QC200**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Interlab_D**	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5
Statistics																	
Number of Results							**3**	**4**	**1**	**4**	**4**	**1**	**4**	**4**	**1**	**4**	**4**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<2**	**<2**	**<5**	**<2**	**<2**	**<5**	**<2**	**<2**	**<10**	**<2**	**<2**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<2**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<2**	**<10**	**<10**	**<5**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**1**	**1.4**		**1.4**	**1.4**		**1.4**	**1**		**2**	**1.4**
Median Concentration *							**1**	**1**	**2.5**	**1**	**1**	**2.5**	**1**	**1**	**5**	**1**	**1**
Standard Deviation *							**0**	**0.75**		**0.75**	**0.75**		**0.75**	**0**		**2**	**0.75**
95% UCL (Student's-t) *							**1**	**2.258**		**2.258**	**2.258**		**2.258**	**1**		**4.353**	**2.258**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene
	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	2	4	2	0.0002	2	2	2	2	2	0.1	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	<1.0	<1.0
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	<1.0	<1.0
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	<0.0002	-	-	-	-	-	<0.1	<0.1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<2	<4	<2	-	-	-	-	-	-	<1.0	<1.0
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<2	<4	<2	-	-	-	-	-	-	<1.0	<1.0
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<2	<4	<2	-	-	-	-	-	-	<1.0	<1.0
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<5	-	<5	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1

Statistics

Statistics	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene
Number of Results	4	3	4	2	1	1	1	1	1	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<4	<2	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<4	<5	<0.0002	<2	<2	<2	<2	<2	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.4	2	1.4	0.0001						0.37	0.37
Median Concentration *	1	2	1	0.0001	1	1	1	1	1	0.5	0.5
Standard Deviation *	0.75	0	0.75	0						0.22	0.22
95% UCL (Student's-t) *	2.258	2	2.258	0.0001						0.533	0.533
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	PAH										
	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	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
EQL	0.1	0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	0.4		0.2						1.4		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics

Statistics	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene
Number of Results	7	7	7	5	7	5	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.37	0.37	0.19	0.5	0.37	0.5	0.37	0.37	0.37	0.37	0.37
Median Concentration *	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Standard Deviation *	0.22	0.22	0.098	0	0.22	0	0.22	0.22	0.22	0.22	0.22
95% UCL (Student's-t) *	0.533	0.533	0.265	0.5	0.533	0.5	0.533	0.533	0.533	0.533	0.533
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

							TPH				
	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)
	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	2										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	180	420	60	660
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50

Statistics

Statistics	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)
Number of Results	**7**	**7**	**2**	**5**	**5**	**2**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**
Minimum Concentration	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**	**<50**	**<100**	**<50**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**180**	**420**	**60**	**660**
Maximum Concentration	**<1**	**<1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<20**	**180**	**420**	**<100**	**660**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**180**	**420**	**60**	**660**
Average Concentration *	**0.37**	**0.37**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**8.6**	**47**	**103**	**37**	**116**
Median Concentration *	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10**	**25**	**50**	**25**	**25**
Standard Deviation *	**0.22**	**0.22**	**0**	**0**	**0**	**0**	**2.4**	**59**	**140**	**16**	**240**
95% UCL (Student's-t) *	**0.533**	**0.533**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10.36**	**90.17**	**205.6**	**48.53**	**292**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**14**	**14**	**14**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**86**	**86**	**86**	**86**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Phenols										
	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)
	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	2	2	0.02	2	0.0005	2	2	2	2	2	4
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	142
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<2	<2	<0.02	<2	<0.0005	<2	<2	<2	<2	<2	<4

Statistics

Statistics	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)
Number of Results	**1**	**4**	**1**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Minimum Concentration	**<2**	**<2**	**<0.02**	**<2**	**<0.0005**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**142**
Maximum Concentration	**<2**	**<2**	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**142**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**142**
Average Concentration *		**1**		**1**	**0.0038**	**1**	**1**	**1**	**1**	**1**	**37**
Median Concentration *	**1**	**1**	**0.01**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**
Standard Deviation *		**0**		**0**	**0.0024**	**0**	**0**	**0**	**0**	**0**	**70**
95% UCL (Student's-t) *		**1**		**1**	**0.00661**	**1**	**1**	**1**	**1**	**1**	**119.4**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**75**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

													PCBs				
							2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							2	20	20	2	4	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											22	400					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters											11	400					
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	<2	<2	<2	<2	<2
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<2	-	-	<2	<4	3	-	-	-	-	-
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<2	-	-	<2	<4	<2	-	-	-	-	-
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<2	-	-	<2	<4	<2	-	-	-	-	-
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<2	<20	<20	<5	<10	<2	<2	<2	<2	<2	<2

Statistics

Number of Results	**4**	**1**	**1**	**4**	**4**	**4**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<20**	**<20**	**<2**	**<4**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<20**	**<20**	**<5**	**<10**	**3**	**<2**	**<2**	**<2**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**			**1.4**	**2.8**	**1.5**	**1**	**1**	**1**	**1**	**1**
Median Concentration *	**1**	**10**	**10**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *	**0**			**0.75**	**1.5**	**1**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**			**2.258**	**4.515**	**2.677**	**1**	**1**	**1**	**1**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**75**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

										Explosives							
							Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin
							µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							2	2	1	0.002	0.005	4	4	2	0.2	0.2	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426006005	**CZ5a/Shallow**	**CZ5_MW09**		**06 Aug 2024**	**Water**	**Normal**	-	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5
ES2426006001	**CZ5a/Shallow**	**QC01**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Field_D**	-	-	<1	-	-	-	-	-	<0.5	<0.5	<0.5
358929-1	**CZ5a/Shallow**	**QC02**	**CZ5_MW09**	**06 Aug 2024**	**Water**	**Interlab_D**	<2	<2	-	-	-	-	-	-	<0.2	<0.2	-
ES2428614001	**CZ5a/Shallow**	**CZ5a_MW102**		**02 Sep 2024**	**Water**	**Normal**	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5
ES2428614002	**CZ5a/Shallow**	**CZ5a_MW103**		**02 Sep 2024**	**Water**	**Normal**	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5
ES2428614003	**CZ5a/Shallow**	**QC100**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Field_D**	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5
360800-1	**CZ5a/Shallow**	**QC200**	**CZ5a_MW103**	**02 Sep 2024**	**Water**	**Interlab_D**	<2	<2	-	-	<0.005	-	<5	<5	<0.2	<0.2	-

Statistics

Number of Results	**2**	**2**	**5**	**3**	**1**	**3**	**4**	**4**	**7**	**7**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<1**	**<0.002**	**<0.005**	**<4**	**<4**	**<2**	**<0.2**	**<0.2**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<1**	**<0.002**	**<0.005**	**<4**	**<5**	**<5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1**	**0.5**	**0.001**		**2**	**2.1**	**1.4**	**0.21**	**0.21**	**0.25**
Median Concentration *	**1**	**1**	**0.5**	**0.001**	**0.0025**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**		**0**	**0.25**	**0.75**	**0.073**	**0.073**	**0**
95% UCL (Student's-t) *	**1**	**1**	**0.5**	**0.001**		**2**	**2.419**	**2.258**	**0.261**	**0.261**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
	Organochlorine Pesticides										
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2

Statistics

Statistics	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
Number of Results	7	7	5	7	7	7	7	7	5	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.21	0.21	0.25	0.21	0.21	0.21	0.21	0.74	0.25	0.21	0.21
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25
Standard Deviation *	0.073	0.073	0	0.073	0.073	0.073	0.073	0.44	0	0.073	0.073
95% UCL (Student's-t) *	0.261	0.261	0.25	0.261	0.261	0.261	0.261	1.065	0.25	0.261	0.261
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			0.008								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters			0.004								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Statistics

Statistics	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl
Number of Results	7	7	7	7	6	7	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<2	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.21	0.21	0.21	0.21	0.38	0.21	0.21	0.21	0.74	0.21	0.21
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25
Standard Deviation *	0.073	0.073	0.073	0.073	0.31	0.073	0.073	0.073	0.44	0.073	0.073
95% UCL (Student's-t) *	0.261	0.261	0.261	0.261	0.627	0.261	0.261	0.261	1.065	0.261	0.261
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Organophospho										
	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			0.009								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters			0.009								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5

Statistics

Statistics	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate
Number of Results	5	5	7	7	2	5	7	7	7	2	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.21	0.21	0.1	0.25	0.21	0.21	0.21	0.1	
Median Concentration *	0.25	0.25	0.25	0.25	0.1	0.25	0.25	0.25	0.25	0.1	2.5
Standard Deviation *	0	0	0.073	0.073	0	0	0.073	0.073	0.073	0	
95% UCL (Student's-t) *	0.25	0.25	0.261	0.261	0.1	0.25	0.261	0.261	0.261	0.1	
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	rous Pesticides										
	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.5	-	<0.5	<0.5	<0.5	-	<2.0	<2.0	<2.0	-	<0.5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-

Statistics

Statistics	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos
Number of Results	**7**	**2**	**7**	**7**	**7**	**2**	**7**	**5**	**7**	**2**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.2**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<2**	**<2**	**<2**	**<0.2**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.21**	**0.1**	**0.21**	**0.21**	**0.21**	**0.1**	**0.74**	**1**	**0.74**	**0.1**	**0.25**
Median Concentration *	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.1**	**1**	**1**	**1**	**0.1**	**0.25**
Standard Deviation *	**0.073**	**0**	**0.073**	**0.073**	**0.073**	**0**	**0.44**	**0**	**0.44**	**0**	**0**
95% UCL (Student's-t) *	**0.261**	**0.1**	**0.261**	**0.261**	**0.261**	**0.1**	**1.065**	**1**	**1.065**	**0.1**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Pesticides										
	Ronnel	Safrole	Chlorobenzilate	Carbazole	Cyromazine	Pirimphos-ethyl	Metribuzin	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.2	5	2	2	0.05	0.5	2	0.0005	0.0005	0.0005	0.0005
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Ronnel	Safrole	Chlorobenzilate	Carbazole	Cyromazine	Pirimphos-ethyl	Metribuzin	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	<0.5	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	<0.5	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.2	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	-	<2	<2	<0.05	<0.5	-	<0.01	<0.01	<0.01	<0.01
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	-	<2	<2	<0.05	<0.5	-	<0.01	<0.01	<0.01	<0.01
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	-	-	<2	<2	<0.05	<0.5	-	<0.01	<0.01	<0.01	<0.01
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.2	<5	-	<5	-	-	<2	<0.0005	<0.0005	<0.0005	<0.0005

Statistics

Statistics	Ronnel	Safrole	Chlorobenzilate	Carbazole	Cyromazine	Pirimphos-ethyl	Metribuzin	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop
Number of Results	**2**	**1**	**3**	**4**	**3**	**5**	**1**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<5**	**<2**	**<2**	**<0.05**	**<0.5**	**<2**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.2**	**<5**	**<2**	**<5**	**<0.05**	**<0.5**	**<2**	**<0.01**	**<0.01**	**<0.01**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.1**		**1**	**1.4**	**0.025**	**0.25**		**0.0038**	**0.0038**	**0.0038**	**0.0038**
Median Concentration *	**0.1**	**2.5**	**1**	**1**	**0.025**	**0.25**	**1**	**0.005**	**0.005**	**0.005**	**0.005**
Standard Deviation *	**0**		**0**	**0.75**	**0**	**0**		**0.0024**	**0.0024**	**0.0024**	**0.0024**
95% UCL (Student's-t) *	**0.1**		**1**	**2.258**	**0.025**	**0.25**		**0.00661**	**0.00661**	**0.00661**	**0.00661**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Herbicides										
	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	2-Chlorophenoxyacetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Cyanazine	Dicamba
	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.0005	0.5	0.0005	0.00001	0.002	0.00001	1	0.5	1	0.02	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	2,4,6-Trichlorophenoxy-acetic acid	2,4-DB	2-Chlorophenoxyacetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Cyanazine	Dicamba
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.01	<10	-	<0.00001	-	<0.00001	-	-	-	<0.02	<10
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.01	<10	-	<0.00001	-	<0.00001	-	-	-	<0.02	<10
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.01	<10	-	<0.00001	-	<0.00001	-	-	-	<0.02	<10
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.0005	<0.5	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<2	<0.5

Statistics

Statistics	2,4,6-Trichlorophenoxy-acetic acid	2,4-DB	2-Chlorophenoxyacetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Cyanazine	Dicamba
Number of Results	4	4	1	4	1	4	1	1	1	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.0005	<0.5	<0.0005	<0.00001	<0.002	<0.00001	<1	<0.5	<1	<0.02	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.01	<10	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<2	<10
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.0038	3.8		0.00025		0.00025				0.26	3.8
Median Concentration *	0.005	5	0.00025	0.000005	0.001	0.000005	0.5	0.25	0.5	0.01	5
Standard Deviation *	0.0024	2.4		0.0005		0.0005				0.5	2.4
95% UCL (Student's-t) *	0.00661	6.607		0.00083915		0.00083915				0.84	6.607
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

	Dinoseb	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine	Simazine	Terbutryn	Perfluorobutane sulfonic acid (PFBS)
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L	mg/L	µg/L
EQL	1	2	0.5	0.5	0.5	0.00001	2	0.00001	0.00002	0.00001	0.02
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Dinoseb	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine	Simazine	Terbutryn	Perfluorobutane sulfonic acid (PFBS)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	-	-	-	0.15
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	0.15
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	-	<10	<10	<10	<0.00001	<2	<0.00001	<0.00002	<0.00001	<0.02
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	-	<10	<10	<10	<0.00001	<2	<0.00001	<0.00002	<0.00001	<0.02
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	-	-	<10	<10	<10	<0.00001	<2	<0.00001	<0.00002	<0.00001	<0.02
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<1	<2	<0.5	<0.5	<0.5	<0.002	-	<0.002	<0.002	<0.002	-

Statistics

Statistics	Dinoseb	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine	Simazine	Terbutryn	Perfluorobutane sulfonic acid (PFBS)
Number of Results	**1**	**1**	**4**	**4**	**4**	**4**	**3**	**4**	**4**	**4**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Minimum Concentration	**<1**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.00001**	**<2**	**<0.00001**	**<0.00002**	**<0.00001**	**<0.02**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.15**
Maximum Concentration	**<1**	**<2**	**<10**	**<10**	**<10**	**<0.002**	**<2**	**<0.002**	**<0.002**	**<0.002**	**0.15**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.15**
Average Concentration *			**3.8**	**3.8**	**3.8**	**0.00025**	**1**	**0.00025**	**0.00026**	**0.00025**	**0.066**
Median Concentration *	**0.5**	**1**	**5**	**5**	**5**	**0.000005**	**1**	**0.000005**	**0.00001**	**0.000005**	**0.01**
Standard Deviation *			**2.4**	**2.4**	**2.4**	**0.0005**	**0**	**0.0005**	**0.0005**	**0.0005**	**0.077**
95% UCL (Student's-t) *			**6.607**	**6.607**	**6.607**	**0.00083915**	**1**	**0.00083915**	**0.00083996**	**0.00083915**	**0.139**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**40**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**60**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)
	erfluoroalkyl Sulfonic Acids			Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acid		
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%		0.13						220			
PFAS NEMP 2020 Interim Marine 99%		0.00023						19			
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	0.14	<0.01	0.14	<0.1	<0.02	0.06	<0.02	<0.01	<0.05	<0.05	<0.05
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	0.16	<0.01	0.16	<0.1	<0.02	0.06	<0.02	<0.01	<0.05	<0.05	<0.05
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	0.16	<0.01	0.16	-	-	-	-	<0.01	-	<0.01	<0.02
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.01	0.02	0.02	<0.1	0.06	0.04	<0.02	0.01	<0.05	<0.05	<0.05
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02

Statistics

Statistics	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS
Number of Results	**7**	**7**	**7**	**5**	**5**	**5**	**5**	**7**	**5**	**7**	**7**
Number of Detects	**3**	**1**	**4**	**0**	**1**	**3**	**0**	**1**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**0.01**	**<0.05**	**<0.01**	**<0.02**
Minimum Detect	**0.14**	**0.02**	**0.02**	**ND**	**0.06**	**0.04**	**ND**	**0.01**	**ND**	**ND**	**ND**
Maximum Concentration	**0.16**	**0.02**	**0.16**	**<0.1**	**0.06**	**0.06**	**<0.02**	**0.01**	**<0.05**	**<0.05**	**<0.05**
Maximum Detect	**0.16**	**0.02**	**0.16**	**ND**	**0.06**	**0.06**	**ND**	**0.01**	**ND**	**ND**	**ND**
Average Concentration *	**0.069**	**0.0071**	**0.071**	**0.05**	**0.02**	**0.036**	**0.01**	**0.0057**	**0.025**	**0.019**	**0.021**
Median Concentration *	**0.005**	**0.005**	**0.02**	**0.05**	**0.01**	**0.04**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**
Standard Deviation *	**0.08**	**0.0057**	**0.078**	**0**	**0.022**	**0.025**	**0**	**0.0019**	**0**	**0.0098**	**0.0073**
95% UCL (Student's-t) *	**0.127**	**0.0113**	**0.128**	**0.05**	**0.0413**	**0.0599**	**0.01**	**0.0071**	**0.025**	**0.0265**	**0.0261**
% of Detects	**43**	**14**	**57**	**0**	**20**	**60**	**0**	**14**	**0**	**0**	**0**
% of Non-Detects	**57**	**86**	**43**	**100**	**80**	**40**	**100**	**86**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T8. Groundwater Analytical Results - Clyde Zone 5a – Shallow Aquifer – Marine Trigger Criteria

	ls	PFAS Totals			Nitroaromatics			Organic	Other		
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L
EQL	0.05	0.01	0.01	0.01	2	2	2	0.00001	0.0005	2	0.001
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	<0.05	0.35	-	-	-	-	-	-	-	-	-
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	<0.05	0.37	-	-	-	-	-	-	-	-	-
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	<0.01	0.16	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<0.05	0.13	-	-	<2	<2	<2	<0.00001	-	<2	-
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<0.05	<0.01	-	-	<2	<2	<2	<0.00001	-	<2	-
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<0.05	<0.01	-	-	<2	<2	<2	<0.00001	-	<2	-
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	-	-	<0.01	<0.01	-	-	<5	<0.002	<0.0005	<5	<0.001

Statistics

Statistic	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)
Number of Results	**5**	**5**	**2**	**2**	**3**	**3**	**4**	**4**	**1**	**4**	**1**
Number of Detects	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**<0.01**	**<0.01**	**<0.01**	**<2**	**<2**	**<2**	**<0.00001**	**<0.0005**	**<2**	**<0.001**
Minimum Detect	**ND**	**0.13**	**ND**	**0.16**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**0.37**	**<0.01**	**0.16**	**<2**	**<2**	**<5**	**<0.002**	**<0.0005**	**<5**	**<0.001**
Maximum Detect	**ND**	**0.37**	**ND**	**0.16**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.025**	**0.17**	**0.005**	**0.082**	**1**	**1**	**1.4**	**0.00025**		**1.4**	
Median Concentration *	**0.025**	**0.13**	**0.005**	**0.0825**	**1**	**1**	**1**	**0.000005**	**0.00025**	**1**	**0.0005**
Standard Deviation *	**0**	**0.18**	**0**	**0.11**	**0**	**0**	**0.75**	**0.0005**		**0.75**	
95% UCL (Student's-t) *	**0.025**	**0.343**	**0.005**	**0.572**	**1**	**1**	**2.258**	**0.00083915**		**2.258**	
% of Detects	**0**	**60**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**40**	**100**	**50**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Phthalates							Solvents			
	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	2	50	2	2	2	2	50	50	50	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Interim Marine 95%											
PFAS NEMP 2020 Interim Marine 99%											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Estuaries											
NEPM 2013 Table 1C GILs, Marine Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	-	-	-	-	-	<50	<50	<50	<5
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	<50	<50	<50	<5
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	-	<10	<50	<10	<10	<50	<50	-	-	-	-

Statistics

Statistics	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide
Number of Results	**3**	**4**	**1**	**4**	**4**	**4**	**4**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<2**	**<50**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<10**	**<10**	**<50**	**<10**	**<10**	**<50**	**<50**	**<50**	**<50**	**<50**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**5**	**2**		**2**	**2**	**7**	**7**	**25**	**25**	**25**	**2.5**
Median Concentration *	**5**	**1**	**25**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**
Standard Deviation *	**0**	**2**		**2**	**2**	**12**	**12**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**5**	**4.353**		**4.353**	**4.353**	**21.12**	**21.12**	**25**	**25**	**25**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							Cyclohexane	Isophorone	Vinyl acetate
							mg/L	µg/L	µg/L
EQL							0.001	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species									
PFAS NEMP 2020 Interim Marine 95%									
PFAS NEMP 2020 Interim Marine 99%									
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)									
ANZECC 2000 SE Aust - Estuaries									
NEPM 2013 Table 1C GILs, Marine Waters									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**			
ES2426006005	CZ5a/Shallow	CZ5_MW09		06 Aug 2024	Water	Normal	-	-	<50
ES2426006001	CZ5a/Shallow	QC01	CZ5_MW09	06 Aug 2024	Water	Field_D	-	-	<50
358929-1	CZ5a/Shallow	QC02	CZ5_MW09	06 Aug 2024	Water	Interlab_D	<0.001	-	-
ES2428614001	CZ5a/Shallow	CZ5a_MW102		02 Sep 2024	Water	Normal	-	<2	<50
ES2428614002	CZ5a/Shallow	CZ5a_MW103		02 Sep 2024	Water	Normal	-	<2	<50
ES2428614003	CZ5a/Shallow	QC100	CZ5a_MW103	02 Sep 2024	Water	Field_D	-	<2	<50
360800-1	CZ5a/Shallow	QC200	CZ5a_MW103	02 Sep 2024	Water	Interlab_D	<0.001	<5	-

Statistics

Number of Results	2	4	5
Number of Detects	0	0	0
Minimum Concentration	<0.001	<2	<50
Minimum Detect	ND	ND	ND
Maximum Concentration	<0.001	<5	<50
Maximum Detect	ND	ND	ND
Average Concentration *	0.0005	1.4	25
Median Concentration *	0.0005	1	25
Standard Deviation *	0	0.75	0
95% UCL (Student's-t) *	0.0005	2.258	25
% of Detects	0	0	0
% of Non-Detects	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Physico-Chemical & Major Io										
	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)						469					
ANZECC 2000 SE Aust - Lowland River			6.5-8								
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	203	6.19	6.55	484	6.2	321	45	55	<1	<1	68
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	198	6.74	7.24	527	8.6	342	46	79	<1	<1	91
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	126	5.96	6.61	959	7.6	626	166	203	<1	<1	42
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	-	-	-	-
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	-	-	-	-

Statistics

Statistics	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**0**	**0**	**3**
Minimum Concentration	**126**	**5.96**	**6.55**	**484**	**6.2**	**321**	**45**	**55**	**<1**	**<1**	**42**
Minimum Detect	**126**	**5.96**	**6.55**	**484**	**6.2**	**321**	**45**	**55**	**ND**	**ND**	**42**
Maximum Concentration	**203**	**6.74**	**7.24**	**959**	**8.6**	**626**	**166**	**203**	**<1**	**<1**	**91**
Maximum Detect	**203**	**6.74**	**7.24**	**959**	**8.6**	**626**	**166**	**203**	**ND**	**ND**	**91**
Average Concentration *	**176**	**6.3**	**6.8**	**657**	**7.5**	**430**	**86**	**112**	**0.5**	**0.5**	**67**
Median Concentration *	**198**	**6.19**	**6.61**	**527**	**7.6**	**342**	**46**	**79**	**0.5**	**0.5**	**68**
Standard Deviation *	**43**	**0.4**	**0.38**	**263**	**1.2**	**170**	**70**	**79**	**0**	**0**	**25**
95% UCL (Student's-t) *	**248.3**	**6.972**	**7.444**	**1,100**	**9.499**	**716.9**	**203**	**246.2**	**0.5**	**0.5**	**108.3**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							ns										
							Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total
							mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L
EQL							1	1	1	1	1	0.01	0.01	0.01	1	0.01	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																0.9	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	68	9	12	73	4	4.50	4.71	2.29	72	<0.01	1.4
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	91	4	5	106	<1	4.76	5.22	4.62	30	<0.01	0.7
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	42	13	11	106	6	9.75	6.32	21.3	78	0.04	0.8
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	-	-	-	-	-	-	-	-	-	-	-
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	-	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**1**	**3**
Minimum Concentration	**42**	**4**	**5**	**73**	**<1**	**4.5**	**4.71**	**2.29**	**30**	**<0.01**	**0.7**
Minimum Detect	**42**	**4**	**5**	**73**	**4**	**4.5**	**4.71**	**2.29**	**30**	**0.04**	**0.7**
Maximum Concentration	**91**	**13**	**12**	**106**	**6**	**9.75**	**6.32**	**21.3**	**78**	**0.04**	**1.4**
Maximum Detect	**91**	**13**	**12**	**106**	**6**	**9.75**	**6.32**	**21.3**	**78**	**0.04**	**1.4**
Average Concentration *	**67**	**8.7**	**9.3**	**95**	**3.5**	**6.3**	**5.4**	**9.4**	**60**	**0.017**	**0.97**
Median Concentration *	**68**	**9**	**11**	**106**	**4**	**4.76**	**5.22**	**4.62**	**72**	**0.005**	**0.8**
Standard Deviation *	**25**	**4.5**	**3.8**	**19**	**2.8**	**3**	**0.82**	**10**	**26**	**0.02**	**0.38**
95% UCL (Student's-t) *	**108.3**	**16.27**	**15.72**	**127.1**	**8.193**	**11.32**	**6.804**	**26.88**	**104.1**	**0.0507**	**1.605**
% of Detects	**100**	**100**	**100**	**100**	**67**	**100**	**100**	**100**	**100**	**33**	**100**
% of Non-Detects	**0**	**0**	**0**	**0**	**33**	**0**	**0**	**0**	**0**	**67**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T9. Groundwater Analytical Results – Parramatta – Shallow Aquifer – Freshwater Trigger Criteria

	Nutrients										
	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L
EQL	0.01	0.01	0.01	0.1	0.01	0.01	0.01	1	0.1	0.005	0.005
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.055		0.2	0.001	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	2.4										
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)				11							
ANZECC 2000 SE Aust - Lowland River				0.5		0.02					
NEPM 2013 Table 1C GILs, Fresh Waters							*0.055 | 0.055*		*0.2*	*0.001*	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P	Reactive Phosphorus as P	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	10.1	0.12	10.2	11.6	0.02	0.02	<0.01	<1	<0.1	<0.01	-
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	3.10	<0.01	3.10	3.8	0.01	<0.01	-	<1	<0.1	<0.01	-
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	0.11	<0.01	0.11	0.9	0.40	<0.01	-	<1	<0.1	<0.01	-
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	-	-	-	-	-	-	1	<0.1	<0.01	-
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	-	-	-	-	-	-	1	<0.1	<0.005	<0.005

Statistics

Statistics	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P	Reactive Phosphorus as P	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**1**	**5**	**5**	**5**	**1**
Number of Detects	**3**	**1**	**3**	**3**	**3**	**1**	**0**	**2**	**0**	**0**	**0**
Minimum Concentration	**0.11**	**<0.01**	**0.11**	**0.9**	**0.01**	**<0.01**	**<0.01**	**1**	**<0.1**	**<0.005**	**<0.005**
Minimum Detect	**0.11**	**0.12**	**0.11**	**0.9**	**0.01**	**0.02**	**ND**	**1**	**ND**	**ND**	**ND**
Maximum Concentration	**10.1**	**0.12**	**10.2**	**11.6**	**0.4**	**0.02**	**<0.01**	**1**	**<0.1**	**<0.01**	**<0.005**
Maximum Detect	**10.1**	**0.12**	**10.2**	**11.6**	**0.4**	**0.02**	**ND**	**1**	**ND**	**ND**	**ND**
Average Concentration *	**4.4**	**0.043**	**4.5**	**5.4**	**0.14**	**0.01**		**0.7**	**0.05**	**0.0045**	
Median Concentration *	**3.1**	**0.005**	**3.1**	**3.8**	**0.02**	**0.005**	**0.005**	**0.5**	**0.05**	**0.005**	**0.0025**
Standard Deviation *	**5.1**	**0.066**	**5.2**	**5.5**	**0.22**	**0.0087**		**0.27**	**0**	**0.0011**	
95% UCL (Student's-t) *	**13.08**	**0.155**	**13.21**	**14.76**	**0.518**	**0.0246**		**0.961**	**0.05**	**0.00557**	
% of Detects	**100**	**33**	**100**	**100**	**100**	**33**	**0**	**40**	**0**	**0**	**0**
% of Non-Detects	**0**	**67**	**0**	**0**	**0**	**67**	**100**	**60**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Metals										
	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene
	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL	0.005	1	1	0.01	1	0.001	0.05	1	0.05	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			1.4		3.4	1.9	0.6	11		8	950
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)			2							30	
ANZECC 2000 SE Aust - Lowland River									0.05		
NEPM 2013 Table 1C GILs, Fresh Waters			*1.4*		*3.4*	*1.9*	*0.06*	*11*		*8*	*950*

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.01	<1	*58*	<0.05	<1	0.083	<0.1	2	-	*14*	<1
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.01	<1	*74*	<0.05	<1	0.002	<0.1	<1	-	*9*	<1
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.01	<1	<1	0.97	<1	0.020	<0.1	3	-	5	<1
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.01	<1	*2*	1.16	1	0.020	<0.1	3	-	*10*	<1
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	1	*4*	1.6	2	0.027	<0.05	3	<0.05	*13*	<1

Statistics

Statistics	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene
Number of Results	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**5**	**5**
Number of Detects	**0**	**1**	**4**	**3**	**2**	**5**	**0**	**4**	**0**	**5**	**0**
Minimum Concentration	**<0.01**	**1**	**<1**	**<0.05**	**1**	**0.002**	**<0.05**	**<1**	**<0.05**	**5**	**<1**
Minimum Detect	**ND**	**1**	**2**	**0.97**	**1**	**0.002**	**ND**	**2**	**ND**	**5**	**ND**
Maximum Concentration	**<0.01**	**1**	**74**	**1.6**	**2**	**0.083**	**<0.1**	**3**	**<0.05**	**14**	**<1**
Maximum Detect	**ND**	**1**	**74**	**1.6**	**2**	**0.083**	**ND**	**3**	**ND**	**14**	**ND**
Average Concentration *	**0.005**	**0.6**	**28**	**0.76**	**0.9**	**0.03**	**0.045**	**2.3**		**10**	**0.5**
Median Concentration *	**0.005**	**0.5**	**4**	**0.97**	**0.5**	**0.02**	**0.05**	**3**	**0.025**	**10**	**0.5**
Standard Deviation *	**0**	**0.22**	**35**	**0.71**	**0.65**	**0.031**	**0.011**	**1.1**		**3.6**	**0**
95% UCL (Student's-t) *	**0.005**	**0.813**	**61.49**	**1.428**	**1.522**	**0.0598**	**0.0557**	**3.344**		**13.6**	**0.5**
% of Detects	**0**	**20**	**80**	**60**	**40**	**100**	**0**	**80**	**0**	**100**	**0**
% of Non-Detects	**100**	**80**	**20**	**40**	**60**	**0**	**100**	**20**	**100**	**0**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T9. Groundwater Analytical Results – Parramatta – Shallow Aquifer – Freshwater Trigger Criteria

	BTEX										
	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	2	1	2	0.1	1	1	10	10	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	180	80		350		16	16				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters				*350*	*550*	*16*	*16*				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<2	<2	<2	<2	<2	2.4	<5	<1	<20	<20	<100
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<2	<2	<2	<2	<2	1.8	<5	<1	<20	<20	<100
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50

Statistics

Statistics	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16
Number of Results	**5**	**5**	**5**	**5**	**4**	**5**	**5**	**4**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<2**	**<1**	**<2**	**<0.1**	**<1**	**<1**	**<10**	**<10**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**1.8**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<2**	**<2**	**2.4**	**<5**	**<1**	**<20**	**<20**	**<100**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**2.4**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.9**	**0.9**	**1**	**0.9**	**1**	**1**	**2.1**	**0.5**	**9**	**9**	**45**
Median Concentration *	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**
Standard Deviation *	**0.22**	**0.22**	**0**	**0.22**	**0**	**1**	**0.89**	**0**	**2.2**	**2.2**	**11**
95% UCL (Student's-t) *	**1.113**	**1.113**	**1**	**1.113**	**1**	**2.002**	**2.953**	**0.5**	**11.13**	**11.13**	**55.66**
% of Detects	**0**	**0**	**0**	**0**	**0**	**40**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**60**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	TRH				MAH						
	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	50	100	100	50	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							30				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistics	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<100**	**<100**	**<50**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**45**	**50**	**50**	**45**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
Median Concentration *	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**11**	**0**	**0**	**11**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**
95% UCL (Student's-t) *	**55.66**	**50**	**50**	**55.66**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

			Halogenated Hydrocarbons								
	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	10	10	5	10	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)									270	400	6,500
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											*6,500*

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1

Statistics

	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane
Number of Results	**5**	**5**	**5**	**5**	**5**	**4**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<10**	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<50**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.1**	**2.1**	**2.1**	**21**	**21**	**2.5**	**21**	**2.1**	**2.1**	**2.1**	**2.1**
Median Concentration *	**2.5**	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0.89**	**0.89**	**0.89**	**8.9**	**8.9**	**0**	**8.9**	**0.89**	**0.89**	**0.89**	**0.89**
95% UCL (Student's-t) *	**2.953**	**2.953**	**2.953**	**29.53**	**29.53**	**2.5**	**29.53**	**2.953**	**2.953**	**2.953**	**2.953**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Chlorinated H										
	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichlorometha ne
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		700				1,900	900	1,100			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichlorometha ne
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Statistics

Statistics	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichlorometha ne
Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<1**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**		**2.1**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**0.5**	**2.5**
Standard Deviation *	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**		**0.89**
95% UCL (Student's-t) *	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**		**2.953**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Hydrocarbons										
	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	10	1	10	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		240			770						330
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1

Statistics

Statistics	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
Number of Results	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.1	2.1	2.1	21	2.1	21	2.1	2.1	2.1	2.1	2.1
Median Concentration *	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0.89	0.89	0.89	8.9	0.89	8.9	0.89	0.89	0.89	0.89	0.89
95% UCL (Student's-t) *	2.953	2.953	2.953	29.53	2.953	29.53	2.953	2.953	2.953	2.953	2.953
% of Detects	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

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											Halogenated Benzenes						
							Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	1	1	10	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							70			100	10	170	160	260	60		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters											*3*	*85*	*160*	*260*	*60*		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1

Statistics

Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.1**	**2.1**	**2.1**	**21**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
Median Concentration *	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0.89**	**0.89**	**0.89**	**8.9**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**
95% UCL (Student's-t) *	**2.953**	**2.953**	**2.953**	**29.53**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T9. Groundwater Analytical Results – Parramatta – Shallow Aquifer – Freshwater Trigger Criteria

							VOCs										
							Bromobenzene	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL							1	1	0.2	5	5	5	0.0002	0.1	0.1	0.1	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								55	0.1			80				0.4	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<5	<5	<0.5	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<1	<1	<0.2	-	-	-	<0.0002	<0.1	<0.1	<0.1	<0.1

Statistics

Number of Results	**5**	**5**	**5**	**4**	**4**	**4**	**1**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<0.2**	**<5**	**<5**	**<5**	**<0.0002**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<0.5**	**<5**	**<5**	**<5**	**<0.0002**	**<1**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.1**	**2.1**	**0.22**	**2.5**	**2.5**	**2.5**		**0.41**	**0.41**	**0.41**	**0.41**
Median Concentration *	**2.5**	**2.5**	**0.25**	**2.5**	**2.5**	**2.5**	**0.0001**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0.89**	**0.89**	**0.067**	**0**	**0**	**0**		**0.2**	**0.2**	**0.2**	**0.2**
95% UCL (Student's-t) *	**2.953**	**2.953**	**0.284**	**2.5**	**2.5**	**2.5**		**0.602**	**0.602**	**0.602**	**0.602**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T9. Groundwater Analytical Results – Parramatta – Shallow Aquifer – Freshwater Trigger Criteria

	PAH										
	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.2						1.4			2	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Statistics

Statistics	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
Number of Results	**5**	**4**	**5**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.21**	**0.5**	**0.41**	**0.5**	**0.41**	**0.41**	**0.41**	**0.41**	**0.41**	**0.41**	**0.41**
Median Concentration *	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0.089**	**0**	**0.2**	**0**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
95% UCL (Student's-t) *	**0.295**	**0.5**	**0.602**	**0.5**	**0.602**	**0.602**	**0.602**	**0.602**	**0.602**	**0.602**	**0.602**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					TPH						
	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	Arochlor 1016	Arochlor 1221
	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.0005	0.0005	0.5	0.0001	10	50	100	50	50	2	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	Arochlor 1016	Arochlor 1221
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	-	<0.0005	2.4	-	<20	<50	<100	<50	<50	-	-
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	<0.0005	1.8	-	<20	<50	<100	<50	<50	-	-
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	<2	<2

Statistics

Statistic	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	Arochlor 1016	Arochlor 1221
Number of Results	**1**	**4**	**4**	**1**	**5**	**5**	**5**	**5**	**5**	**1**	**1**
Number of Detects	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**	**<50**	**<100**	**<50**	**<50**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**1.8**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.0005**	**<0.0005**	**2.4**	**<0.0001**	**<20**	**<50**	**<100**	**<100**	**<50**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**2.4**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *		**0.00025**	**1.2**		**9**	**25**	**50**	**30**	**25**		
Median Concentration *	**0.00025**	**0.00025**	**1.025**	**0.00005**	**10**	**25**	**50**	**25**	**25**	**1**	**1**
Standard Deviation *		**0**	**1.1**		**2.2**	**0**	**0**	**11**	**0**		
95% UCL (Student's-t) *		**0.00025**	**2.464**		**11.13**	**25**	**50**	**40.66**	**25**		
% of Detects	**0**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**50**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T9. Groundwater Analytical Results – Parramatta – Shallow Aquifer – Freshwater Trigger Criteria

	PCBs										
	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	2	2	2	2	2	1	0.2	0.2	0.5	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		0.6		0.03							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters		*0.3*		*0.01*							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<2	<2	<2	<2	<2	-	<0.2	<0.2	-	<0.2	<0.2

Statistics

Statistic	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC
Number of Results	**1**	**1**	**1**	**1**	**1**	**4**	**5**	**5**	**4**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**0.5**	**0.22**	**0.22**	**0.25**	**0.22**	**0.22**
Median Concentration *	**1**	**1**	**1**	**1**	**1**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *						**0**	**0.067**	**0.067**	**0**	**0.067**	**0.067**
95% UCL (Student's-t) *						**0.5**	**0.284**	**0.284**	**0.25**	**0.284**	**0.284**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Organochlorine Pesticides										
	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.08					0.01					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters	*0.03*					*0.006*					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2

Statistics

Statistics	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate
Number of Results	**4**	**5**	**5**	**5**	**5**	**5**	**4**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.22**	**0.22**	**0.22**	**0.22**	**0.82**	**0.25**	**0.22**	**0.22**	**0.22**	**0.22**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0.067**	**0.067**	**0.067**	**0.067**	**0.4**	**0**	**0.067**	**0.067**	**0.067**	**0.067**
95% UCL (Student's-t) *	**0.25**	**0.284**	**0.284**	**0.284**	**0.284**	**1.204**	**0.25**	**0.284**	**0.284**	**0.284**	**0.284**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.02			0.2	0.09			0.02			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters							*0.01*			*0.2*	*0.01*						
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-

Statistics

	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos
Number of Results	**5**	**5**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.22**	**0.22**	**0.25**	**0.22**	**0.22**	**0.22**	**0.82**	**0.22**	**0.22**	**0.25**	**0.25**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0.067**	**0.067**	**0**	**0.067**	**0.067**	**0.067**	**0.4**	**0.067**	**0.067**	**0**	**0**
95% UCL (Student's-t) *	**0.284**	**0.284**	**0.25**	**0.284**	**0.284**	**0.284**	**1.204**	**0.284**	**0.284**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Organophosphorous Pesticides										
	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.01				0.01		0.15			0.2	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters	*0.01*				*0.01*		*0.15*			*0.2*	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Statistics

Statistics	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos
Number of Results	**5**	**5**	**1**	**4**	**5**	**5**	**5**	**1**	**5**	**1**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.2**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.22**	**0.22**		**0.25**	**0.22**	**0.22**	**0.22**		**0.22**		**0.22**
Median Concentration *	**0.25**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.1**	**0.25**
Standard Deviation *	**0.067**	**0.067**		**0**	**0.067**	**0.067**	**0.067**		**0.067**		**0.067**
95% UCL (Student's-t) *	**0.284**	**0.284**		**0.25**	**0.284**	**0.284**	**0.284**		**0.284**		**0.284**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T9. Groundwater Analytical Results – Parramatta – Shallow Aquifer – Freshwater Trigger Criteria

																	Pesti
							Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Mirex
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								0.05					0.004				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters								*0.05*					*0.004*				
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**											
ES2426147006	**Parramatta/Shallow**	**SMW_BH004_S**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-
ES2426449001	**Parramatta/Shallow**	**PM_BH14_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-
ES2426449002	**Parramatta/Shallow**	**PM_BH15_W**		**12 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-
ES2426449003	**Parramatta/Shallow**	**QC03**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Field_D**	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-
359175-1	**Parramatta/Shallow**	**QC04**	**PM_BH15_W**	**12 Aug 2024**	**Water**	**Interlab_D**	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2

Statistics

Number of Results	**5**	**5**	**1**	**1**	**5**	**4**	**5**	**1**	**4**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<2**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.22**	**0.22**			**0.82**	**1**	**0.82**		**0.25**		
Median Concentration *	**0.25**	**0.25**	**0.1**	**0.1**	**1**	**1**	**1**	**0.1**	**0.25**	**0.1**	**0.1**
Standard Deviation *	**0.067**	**0.067**			**0.4**	**0**	**0.4**		**0**		
95% UCL (Student's-t) *	**0.284**	**0.284**			**1.204**	**1**	**1.204**		**0.25**		
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	cides	Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fl
	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%				0.13						220	
PFAS NEMP 2020 Freshwater 99%				0.00023						19	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Pirimphos-ethyl	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.5	<0.02	0.01	0.03	0.04	<0.1	<0.02	<0.02	<0.02	0.03	<0.05
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.5	0.07	0.17	0.22	0.39	<0.1	0.14	0.14	0.07	0.11	<0.05
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.5	<0.02	0.02	0.03	0.05	<0.1	0.13	0.09	0.03	0.07	<0.05
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.5	<0.02	0.02	0.03	0.05	<0.1	0.14	0.12	0.03	0.07	<0.05
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	-	-	0.01	0.02	0.04	-	-	-	-	0.08	-

Statistics

Statistics	Pirimphos-ethyl	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS
Number of Results	**4**	**4**	**5**	**5**	**5**	**4**	**4**	**4**	**4**	**5**	**4**
Number of Detects	**0**	**1**	**5**	**5**	**5**	**0**	**3**	**3**	**3**	**5**	**0**
Minimum Concentration	**<0.5**	**<0.02**	**0.01**	**0.02**	**0.04**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**0.03**	**<0.05**
Minimum Detect	**ND**	**0.07**	**0.01**	**0.02**	**0.04**	**ND**	**0.13**	**0.09**	**0.03**	**0.03**	**ND**
Maximum Concentration	**<0.5**	**0.07**	**0.17**	**0.22**	**0.39**	**<0.1**	**0.14**	**0.14**	**0.07**	**0.11**	**<0.05**
Maximum Detect	**ND**	**0.07**	**0.17**	**0.22**	**0.39**	**ND**	**0.14**	**0.14**	**0.07**	**0.11**	**ND**
Average Concentration *	**0.25**	**0.025**	**0.046**	**0.066**	**0.11**	**0.05**	**0.11**	**0.09**	**0.035**	**0.072**	**0.025**
Median Concentration *	**0.25**	**0.01**	**0.02**	**0.03**	**0.05**	**0.05**	**0.135**	**0.105**	**0.03**	**0.07**	**0.025**
Standard Deviation *	**0**	**0.03**	**0.069**	**0.086**	**0.15**	**0**	**0.064**	**0.057**	**0.025**	**0.029**	**0**
95% UCL (Student's-t) *	**0.25**	**0.0603**	**0.112**	**0.148**	**0.261**	**0.05**	**0.18**	**0.157**	**0.0646**	**0.0993**	**0.025**
% of Detects	**0**	**25**	**100**	**100**	**100**	**0**	**75**	**75**	**75**	**100**	**0**
% of Non-Detects	**100**	**75**	**0**	**0**	**0**	**100**	**25**	**25**	**25**	**0**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	uorotelomer Sulfonic Acids			PFAS Totals			Other	Solvents			
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Phosalone	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.02	0.05	0.01	0.01	0.01	0.0002	50	50	50	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Phosalone	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	<0.05	<0.05	<0.05	0.07	-	-	-	<50	<50	<50	<5
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	<0.05	<0.05	<0.05	0.92	-	-	-	<50	<50	<50	<5
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	<0.05	<0.05	<0.05	0.37	-	-	-	<50	<50	<50	<5
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	<0.05	<0.05	<0.05	0.41	-	-	-	<50	<50	<50	<5
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.01	<0.02	-	-	0.10	0.12	<0.0002	-	-	-	-

Statistics

Statistics	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	Phosalone	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide
Number of Results	**5**	**5**	**4**	**4**	**1**	**1**	**1**	**4**	**4**	**4**	**4**
Number of Detects	**0**	**0**	**0**	**4**	**1**	**1**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.02**	**<0.05**	**0.07**	**0.1**	**0.12**	**<0.0002**	**<50**	**<50**	**<50**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**0.07**	**0.1**	**0.12**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**<0.05**	**<0.05**	**0.92**	**0.1**	**0.12**	**<0.0002**	**<50**	**<50**	**<50**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**0.92**	**0.1**	**0.12**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.021**	**0.022**	**0.025**	**0.44**				**25**	**25**	**25**	**2.5**
Median Concentration *	**0.025**	**0.025**	**0.025**	**0.39**	**0.1**	**0.12**	**0.0001**	**25**	**25**	**25**	**2.5**
Standard Deviation *	**0.0089**	**0.0067**	**0**	**0.35**				**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.0295**	**0.0284**	**0.025**	**0.857**				**25**	**25**	**25**	**2.5**
% of Detects	**0**	**0**	**0**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Cyclohexane	Vinyl acetate
							mg/L	µg/L
EQL							0.001	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species								
PFAS NEMP 2020 Freshwater 95%								
PFAS NEMP 2020 Freshwater 99%								
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)								
ANZECC 2000 SE Aust - Lowland River								
NEPM 2013 Table 1C GILs, Fresh Waters								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Cyclohexane	Vinyl acetate
ES2426147006	Parramatta/Shallow	SMW_BH004_S		09 Aug 2024	Water	Normal	-	<50
ES2426449001	Parramatta/Shallow	PM_BH14_W		12 Aug 2024	Water	Normal	-	<50
ES2426449002	Parramatta/Shallow	PM_BH15_W		12 Aug 2024	Water	Normal	-	<50
ES2426449003	Parramatta/Shallow	QC03	PM_BH15_W	12 Aug 2024	Water	Field_D	-	<50
359175-1	Parramatta/Shallow	QC04	PM_BH15_W	12 Aug 2024	Water	Interlab_D	<0.001	-

Statistics

Statistics	Cyclohexane	Vinyl acetate
Number of Results	**1**	**4**
Number of Detects	**0**	**0**
Minimum Concentration	**<0.001**	**<50**
Minimum Detect	**ND**	**ND**
Maximum Concentration	**<0.001**	**<50**
Maximum Detect	**ND**	**ND**
Average Concentration *		**25**
Median Concentration *	**0.0005**	**25**
Standard Deviation *		**0**
95% UCL (Student's-t) *		**25**
% of Detects	**0**	**0**
% of Non-Detects	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

	Physico-Chemical & Major Ions											
	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)						10,422						
ANZECC 2000 SE Aust - Lowland River			6.5-8									
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	185	6.75	7.41	20,000	6.4	13,100	6,500	346	<1	<1	1,160	1,160
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	39.5	6.85	7.51	13,300	5.0	8,080	4,240	241	<1	<1	1,210	1,210

Statistics

Statistic	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	2	2	2	2	2	2	2	2	0	0	2	2
Minimum Concentration	39.5	6.75	7.41	13,300	5	8,080	4,240	241	<1	<1	1,160	1,160
Minimum Detect	39.5	6.75	7.41	13,300	5	8,080	4,240	241	ND	ND	1,160	1,160
Maximum Concentration	185	6.85	7.51	20,000	6.4	13,100	6,500	346	<1	<1	1,210	1,210
Maximum Detect	185	6.85	7.51	20,000	6.4	13,100	6,500	346	ND	ND	1,210	1,210
Average Concentration *	112	6.8	7.5	16,650	5.7	10,590	5,370	294	0.5	0.5	1,185	1,185
Median Concentration *	112.25	6.8	7.46	16,650	5.7	10,590	5,370	293.5	0.5	0.5	1,185	1,185
Standard Deviation *	103	0.071	0.071	4,738	0.99	3,550	1,598	74	0	0	35	35
95% UCL (Student's-t) *	571.6	7.116	7.776	37,801	10.12	26,438	12,505	625	0.5	0.5	1,343	1,343
% of Detects	100	100	100	100	100	100	100	100	0	0	100	100
% of Non-Detects	0	0	0	0	0	0	0	0	100	100	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

									Nutr			
	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	1	1	1	0.01	0.01	0.01	1	0.01	0.1	0.01	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)									0.9			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											2.4	
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)									3.21			
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	222	515	3,550	64	214	210	1.00	2,680	2.74	5.1	0.49	0.07
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	183	363	1,890	44	149	122	9.76	1,950	0.85	1.9	0.08	<0.01

Statistics

	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**
Minimum Concentration	**183**	**363**	**1,890**	**44**	**149**	**122**	**1**	**1,950**	**0.85**	**1.9**	**0.08**	**<0.01**
Minimum Detect	**183**	**363**	**1,890**	**44**	**149**	**122**	**1**	**1,950**	**0.85**	**1.9**	**0.08**	**0.07**
Maximum Concentration	**222**	**515**	**3,550**	**64**	**214**	**210**	**9.76**	**2,680**	**2.74**	**5.1**	**0.49**	**0.07**
Maximum Detect	**222**	**515**	**3,550**	**64**	**214**	**210**	**9.76**	**2,680**	**2.74**	**5.1**	**0.49**	**0.07**
Average Concentration *	**202**	**439**	**2,720**	**54**	**182**	**166**	**5.4**	**2,315**	**1.8**	**3.5**	**0.28**	**0.038**
Median Concentration *	**202.5**	**439**	**2,720**	**54**	**181.5**	**166**	**5.38**	**2,315**	**1.795**	**3.5**	**0.285**	**0.0375**
Standard Deviation *	**28**	**107**	**1,174**	**14**	**46**	**62**	**6.2**	**516**	**1.3**	**2.3**	**0.29**	**0.046**
95% UCL (Student's-t) *	**325.6**	**918.8**	**7,960**	**117.1**	**386.7**	**443.8**	**33.03**	**4,620**	**7.761**	**13.6**	**1.579**	**0.243**
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**50**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	ients										Metals	
	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L
EQL	0.01	0.1	0.01	0.01	0.01	1	0.1	0.01	0.01	1	1	0.05
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					0.055		0.2	0.001			1.4	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)		3.14	0.192								17	
ANZECC 2000 SE Aust - Lowland River		0.5		0.02								
NEPM 2013 Table 1C GILs, Fresh Waters					*0.055 | 0.055*		*0.2*	*0.001*			*1.4*	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	0.56	5.7	0.47	0.01	0.05	<1	<0.1	<0.01	<0.01	<1	*2*	0.07
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	0.08	2.0	0.04	<0.01	*0.18*	<1	<0.1	<0.01	<0.01	<1	*4*	2.26

Statistics

Statistics	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**2**	**2**	**2**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
Minimum Concentration	**0.08**	**2**	**0.04**	**0.01**	**0.05**	**<1**	**<0.1**	**<0.01**	**<0.01**	**<1**	**2**	**0.07**
Minimum Detect	**0.08**	**2**	**0.04**	**0.01**	**0.05**	**ND**	**ND**	**ND**	**ND**	**ND**	**2**	**0.07**
Maximum Concentration	**0.56**	**5.7**	**0.47**	**0.01**	**0.18**	**<1**	**<0.1**	**<0.01**	**<0.01**	**<1**	**4**	**2.26**
Maximum Detect	**0.56**	**5.7**	**0.47**	**0.01**	**0.18**	**ND**	**ND**	**ND**	**ND**	**ND**	**4**	**2.26**
Average Concentration *	**0.32**	**3.8**	**0.26**	**0.0075**	**0.12**	**0.5**	**0.05**	**0.005**	**0.005**	**0.5**	**3**	**1.2**
Median Concentration *	**0.32**	**3.85**	**0.255**	**0.0075**	**0.115**	**0.5**	**0.05**	**0.005**	**0.005**	**0.5**	**3**	**1.165**
Standard Deviation *	**0.34**	**2.6**	**0.3**	**0.0035**	**0.092**	**0**	**0**	**0**	**0**	**0**	**1.4**	**1.5**
95% UCL (Student's-t) *	**1.835**	**15.53**	**1.612**	**0.0233**	**0.525**	**0.5**	**0.05**	**0.005**	**0.005**	**0.5**	**9.314**	**8.079**
% of Detects	**100**	**100**	**100**	**50**	**100**	**0**	**0**	**0**	**0**	**0**	**100**	**100**
% of Non-Detects	**0**	**0**	**0**	**50**	**0**	**100**	**100**	**100**	**100**	**100**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

						BTEX						
	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.001	0.1	1	5	1	2	2	2	2	2	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	3.4	1.9	0.6	11	8	950	180	80		350		16
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)					107							
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters	*3.4*	*1.9*	*0.06*	*11*	*8*	*950*				*350*	*550*	*16*

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<1	0.098	<0.1	1	<5	<1	<2	<2	<2	<2	<2	<1.0
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<1	0.173	<0.1	2	<5	<1	<2	<2	<2	<2	<2	<1.0

Statistics

	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**0.098**	**<0.1**	**1**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Minimum Detect	**ND**	**0.098**	**ND**	**1**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**0.173**	**<0.1**	**2**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Maximum Detect	**ND**	**0.173**	**ND**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**0.14**	**0.05**	**1.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Median Concentration *	**0.5**	**0.1355**	**0.05**	**1.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Standard Deviation *	**0**	**0.053**	**0**	**0.71**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.5**	**0.372**	**0.05**	**4.657**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
% of Detects	**0**	**100**	**0**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**0**	**100**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

									TRH									
							Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene
							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							5	1	20	20	100	100	100	100	100	5	5	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							16											30
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
PFAS NEMP 2020 Freshwater 95%																		
PFAS NEMP 2020 Freshwater 99%																		
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																		
ANZECC 2000 SE Aust - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters							*16*											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**												
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<1	<20	<20	<100	<100	500	100	600	<5	<5	<5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5

Statistics

Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**100**	**<100**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**500**	**100**	**600**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**500**	**100**	**600**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**500**	**100**	**600**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**275**	**75**	**325**	**2.5**	**2.5**	**2.5**
Median Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**275**	**75**	**325**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**318**	**35**	**389**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**1,696**	**232.8**	**2,061**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**50**	**50**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**50**	**50**	**50**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

	MAH						Halogenated Hydrocarbons					
	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
	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	5	5	5	5	5	5	5	50	50	5	50	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5

Statistics

Statistics	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
	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	5	5	5	5	5	5	5	5	5	5	5	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	270	400	6,500		700				1,900	900	1,100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters			*6,500*									

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Chlorinated Hydrocarbons											
	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
	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	5	5	5	5	50	5	50	5	5	5	5	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			240			770						330
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5

Statistics

Statistics	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

					Halogenated Benzenes							
	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
	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	5	5	5	50	5	5	5	5	5	5	5	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	70			100	10	170	160	260	60			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters					*3*	*85*	*160*	*260*	*60*			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistic	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Median Concentration *	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

			VOCs									
	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
	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	5	0.5	5	5	5	1	1	1	1	0.5	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	55	0.1			80			0.4		0.2		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<0.5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<5	<0.5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0

Statistics

	Chlorobenzene	Hexachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<0.5**	**<5**	**<5**	**<5**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<0.5**	**<5**	**<5**	**<5**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**0.25**	**2.5**	**2.5**	**2.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**
Median Concentration *	**2.5**	**0.25**	**2.5**	**2.5**	**2.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**0.25**	**2.5**	**2.5**	**2.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

	PAH											
	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	0.0005	0.5	20	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)				1.4			2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50

Statistics

Statistic	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.5**	**<20**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.5**	**<20**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**10**	**25**
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**10**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.25**	**10**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

	TPH			PCBs								
	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
	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	100	50	50	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)										0.08		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters										*0.03*		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	270	260	530	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<100	<50	<50	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistic	C15-C28	C29-C36	C10-C36 (Sum of total)	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<50**	**<50**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**270**	**260**	**530**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**270**	**260**	**530**	**<1**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**270**	**260**	**530**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**160**	**142**	**278**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**160**	**142.5**	**277.5**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**156**	**166**	**357**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**854.5**	**884.4**	**1,872**	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**50**	**50**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**50**	**50**	**50**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

	Organochlorine Pesticides											
	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
	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	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			0.01						0.02			0.2
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters			*0.006*						*0.01*			*0.2*

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

												Organophospho
	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
	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	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.09			0.02				0.01			0.01	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters	*0.01*							*0.01*			*0.01*	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
ES2426147007	Westmead/Deep	SMW_WTP_BH03A_W		09 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2426147008	Westmead/Deep	SMW_WTP_BH02_W		09 Aug 2024	Water	Normal	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T10. Groundwater Analytical Results - Westmead – Deep Aquifer – Freshwater Trigger Criteria

	rous Pesticides									Pesticides	Perfluoroalkyl	
	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	0.5	0.02	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.15				0.05			0.004				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters	*0.15*				*0.05*			*0.004*				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	<0.01
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5	<0.02	<0.01

Statistics

	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Pirimphos-ethyl	PFBS	PFHxS
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**	**<0.5**	**<0.5**	**<0.02**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**	**<0.5**	**<0.5**	**<0.02**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**0.25**	**0.01**	**0.005**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**0.25**	**0.01**	**0.005**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**0.25**	**0.01**	**0.005**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Sulfonic Acids		Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals
	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)
	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	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%	0.13						220					
PFAS NEMP 2020 Freshwater 99%	0.00023						19					
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sample Type	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01

Statistics

Statistic	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.005**
Median Concentration *	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.005**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.005**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Solvents				
							Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate
							µg/L	µg/L	µg/L	µg/L	µg/L
EQL							50	50	50	5	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**	**Sample Type**					
ES2426147007	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**09 Aug 2024**	**Water**	**Normal**	<50	<50	<50	<5	<50
ES2426147008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**09 Aug 2024**	**Water**	**Normal**	<50	<50	<50	<5	<50
Statistics											
Number of Results							**2**	**2**	**2**	**2**	**2**
Number of Detects							**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<50**	**<50**	**<50**	**<5**	**<50**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<50**	**<50**	**<50**	**<5**	**<50**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**25**	**25**	**25**	**2.5**	**25**
Median Concentration *							**25**	**25**	**25**	**2.5**	**25**
Standard Deviation *							**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *							**25**	**25**	**25**	**2.5**	**25**
% of Detects							**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T11. Rinsate and Trip Blank Results

				Metals								
				Aluminium (filtered)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)
				mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.01	1	1	0.1	0.1	1	1	1	1
Lab Report Number	**Field ID**	**Date**	**Matrix Type**									
ES2426006	**RS01**	**06 Aug 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-
ES2426006	**RS02**	**07 Aug 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-
ES2426006	**TB01**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	-
ES2426147	**RS03**	**08 Aug 2024**	**Water**	<0.01	-	<1	-	<0.1	-	<1	-	<1
ES2426147	**RS04**	**09 Aug 2024**	**Water**	<0.01	-	<1	-	<0.1	-	<1	-	<1
ES2426147	**TB02**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	-
ES2426449	**RS05**	**12 Aug 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-
ES2426449	**TB03**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	-
ES2427457	**RS06**	**19 Aug 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-
ES2427457	**TB04**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	-
ES2428614	**RS07**	**02 Sep 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-
ES2428614	**TB05**	**26 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	-

Table T11. Rinsate and Trip Blank Results

				Lead	Lead (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Zinc	Zinc (filtered)	Benzene
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	0.1	0.1	1	1	5	5	1
Lab Report Number	**Field ID**	**Date**	**Matrix Type**									
ES2426006	**RS01**	**06 Aug 2024**	**Water**	<1	-	<0.1	-	<1	-	<5	-	-
ES2426006	**RS02**	**07 Aug 2024**	**Water**	<1	-	<0.1	-	<1	-	<5	-	<1
ES2426006	**TB01**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	<1
ES2426147	**RS03**	**08 Aug 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<5	<1
ES2426147	**RS04**	**09 Aug 2024**	**Water**	-	<1	-	<0.1	-	<1	-	<5	<1
ES2426147	**TB02**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	<1
ES2426449	**RS05**	**12 Aug 2024**	**Water**	<1	-	<0.1	-	<1	-	<5	-	<1
ES2426449	**TB03**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	<1
ES2427457	**RS06**	**19 Aug 2024**	**Water**	<1	-	<0.1	-	<1	-	<5	-	<1
ES2427457	**TB04**	**01 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	<1
ES2428614	**RS07**	**02 Sep 2024**	**Water**	<1	-	<0.1	-	<1	-	<5	-	<1
ES2428614	**TB05**	**26 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	<1

Table T11. Rinsate and Trip Blank Results

				BTEX								
				Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	2	2	2	5	1	20	20
Lab Report Number	**Field ID**	**Date**	**Matrix Type**									
ES2426006	**RS01**	**06 Aug 2024**	**Water**	-	-	-	-	-	-	-	-	-
ES2426006	**RS02**	**07 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2426006	**TB01**	**01 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2426147	**RS03**	**08 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2426147	**RS04**	**09 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2426147	**TB02**	**01 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2426449	**RS05**	**12 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2426449	**TB03**	**01 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2427457	**RS06**	**19 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2427457	**TB04**	**01 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2428614	**RS07**	**02 Sep 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20
ES2428614	**TB05**	**26 Aug 2024**	**Water**	<2	<2	<2	<2	<2	<5	<1	<20	<20

Table T11. Rinsate and Trip Blank Results

				TRH					TPH			
				C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				100	100	100	100	100	20	50	100	50
Lab Report Number	**Field ID**	**Date**	**Matrix Type**									
ES2426006	**RS01**	**06 Aug 2024**	**Water**	<100	-	<100	<100	<100	-	<50	<100	<50
ES2426006	**RS02**	**07 Aug 2024**	**Water**	<100	<100	<100	<100	<100	<20	<50	<100	<50
ES2426006	**TB01**	**01 Aug 2024**	**Water**	-	-	-	-	-	<20	-	-	-
ES2426147	**RS03**	**08 Aug 2024**	**Water**	<100	<100	<100	<100	<100	<20	<50	<100	<50
ES2426147	**RS04**	**09 Aug 2024**	**Water**	<100	<100	<100	<100	<100	<20	<50	<100	<50
ES2426147	**TB02**	**01 Aug 2024**	**Water**	-	-	-	-	-	<20	-	-	-
ES2426449	**RS05**	**12 Aug 2024**	**Water**	<100	<100	<100	<100	<100	<20	<50	<100	<50
ES2426449	**TB03**	**01 Aug 2024**	**Water**	-	-	-	-	-	<20	-	-	-
ES2427457	**RS06**	**19 Aug 2024**	**Water**	<100	<100	<100	<100	<100	<20	<50	<100	<50
ES2427457	**TB04**	**01 Aug 2024**	**Water**	-	-	-	-	-	<20	-	-	-
ES2428614	**RS07**	**02 Sep 2024**	**Water**	<100	<100	<100	<100	<100	<20	<50	<100	<50
ES2428614	**TB05**	**26 Aug 2024**	**Water**	-	-	-	-	-	<20	-	-	-

Table T11. Rinsate and Trip Blank Results

				C10-C36 (Sum of total)
				µg/L
EQL				50
Lab Report Number	**Field ID**	**Date**	**Matrix Type**	
ES2426006	**RS01**	**06 Aug 2024**	**Water**	<50
ES2426006	**RS02**	**07 Aug 2024**	**Water**	<50
ES2426006	**TB01**	**01 Aug 2024**	**Water**	-
ES2426147	**RS03**	**08 Aug 2024**	**Water**	<50
ES2426147	**RS04**	**09 Aug 2024**	**Water**	<50
ES2426147	**TB02**	**01 Aug 2024**	**Water**	-
ES2426449	**RS05**	**12 Aug 2024**	**Water**	<50
ES2426449	**TB03**	**01 Aug 2024**	**Water**	-
ES2427457	**RS06**	**19 Aug 2024**	**Water**	<50
ES2427457	**TB04**	**01 Aug 2024**	**Water**	-
ES2428614	**RS07**	**02 Sep 2024**	**Water**	<50
ES2428614	**TB05**	**26 Aug 2024**	**Water**	-

Table T12. Trip Spike Results

					BTEX							
					Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene (BTEX)	Total BTEX
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					1	2	2	2	2	2	5	1
Lab Report Number	**Sample Type**	**Field ID**	**Sampled Date**	**Matrix Type**								
ES2426006	**Trip Spike***	**TS01**	**01 Aug 2024**	**Water**	20	20	20	22	22	44	23	104
Trip spike recovery (%)					**100**	**100**	**100**	**110**	**110**	**110**	**115**	**104**
ES2426147	**Trip Spike***	**TS02**	**01 Aug 2024**	**Water**	14	16	16	15	14	29	20	75
Trip spike recovery (%)					**70**	**80**	**80**	**75**	**70**	**72.5**	**100**	**75**
ES2426449	**Trip Spike***	**TS03**	**01 Aug 2024**	**Water**	17	18	16	16	18	34	20	85
Trip spike recovery (%)					**85**	**90**	**80**	**80**	**90**	**85**	**100**	**85**
ES2427457	**Trip Spike***	**TS04**	**01 Aug 2024**	**Water**	14	14	14	15	15	30	17	72
Trip spike recovery (%)					**70**	**70**	**70**	**75**	**75**	**75**	**85**	**72**
ES2428614	**Trip Spike***	**TS05**	**22 Aug 2024**	**Water**	15	15	14	15	16	31	22	75
Trip spike recovery (%)					**75**	**75**	**70**	**75**	**80**	**77.5**	**110**	**75**

Trip Spike Recoveries. Where no lab LCL and UCL is available, user defined limits between 30% and 150% have been adopted for non-compliance.

*** Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L**

		Lab Report Number	ES2426006	ES2426006		ES2426006	358929		ES2426449
		Field ID	CZ5_MW09	QC01		CZ5_MW09	QC02		PM_BH15_W
		Date	06 Aug 2024	06 Aug 2024		06 Aug 2024	06 Aug 2024		12 Aug 2024
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water
	Unit	EQL							
Physico-Chemical & Major Ions									
Redox Potential (Lab)	mV	0.1	66.2	-	-	66.2	-	-	126
pH Redox	-	0.01	6.03	-	-	6.03	-	-	5.96
pH (Lab)	-	0.01	6.30	-	-	6.30	-	-	6.61
Electrical Conductivity (Lab)	µS/cm	1	11,800	-	-	11,800	-	-	959
Dissolved Oxygen	mg/L	0.1	5.7	-	-	5.7	-	-	7.6
TDS	mg/L	10	7,410	-	-	7,410	-	-	626
Chloride	mg/L	1	4,060	-	-	4,060	-	-	166
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	1	538	-	-	538	-	-	203
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1	-	-	<1	-	-	<1
Carbonate as CaCO3	mg/L	1	<1	-	-	<1	-	-	<1
Bicarbonate as CaCO3	mg/L	1	112	-	-	112	-	-	42
Alkalinity (total) as CaCO3	mg/L	1	112	-	-	112	-	-	42
Calcium (filtered)	mg/L	1	81	-	-	81	-	-	13
Magnesium (filtered)	mg/L	1	208	-	-	208	-	-	11
Sodium (filtered)	mg/L	1	2,050	-	-	2,050	-	-	106
Potassium (filtered)	mg/L	1	5	-	-	5	-	-	6
Anions Total	meq/L	0.01	128	-	-	128	-	-	9.75
Cations Total	meq/L	0.01	110	-	-	110	-	-	6.32
Ionic Balance	%	0.01	7.34	-	-	7.34	-	-	21.3
Hardness as CaCO3 (filtered)	mg/L	1	1,060	-	-	1,060	-	-	78
Nutrients									
Ammonia as N	mg/L	0.01	0.07	-	-	0.07	-	-	0.04
Kjeldahl Nitrogen Total	mg/L	0.1	0.3	-	-	0.3	-	-	0.8
Nitrate (as N)	mg/L	0.01	<0.01	-	-	<0.01	-	-	0.11
Nitrite (as N)	mg/L	0.01	<0.01	-	-	<0.01	-	-	<0.01
Nitrite + Nitrate as N	mg/L	0.01	<0.01	-	-	<0.01	-	-	0.11
Nitrogen (Total)	mg/L	0.1	0.3	-	-	0.3	-	-	0.9
Total Phosphorus as P (Organic Phosphate as P)	mg/L	0.01	<0.01	-	-	<0.01	-	-	0.40
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	0.01	<0.01	-	-	<0.01	-	-	<0.01
Metals									
Aluminium (filtered)	mg/L	0.01	<0.01	<0.01	0	<0.01	-	-	-
Arsenic (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1
Cadmium (filtered)	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Chromium (hexavalent) (filtered)	mg/L	0.005	<0.01	<0.01	0	<0.01	<0.005	0	<0.01
Chromium (Trivalent)	mg/L	0.005	-	-	-	-	<0.005	-	-
Chromium (Trivalent) (filtered)	mg/L	0.005	<0.01	<0.01	0	<0.01	-	-	<0.01
Chromium (III+VI) (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1
Copper (filtered)	µg/L	1	<1	<1	0	<1	1	0	<1
Iron (filtered)	mg/L	0.01	0.17	<0.05	109	0.17	0.11	43	0.97
Lead (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1
Manganese (filtered)	mg/L	0.001	0.121	0.118	3	0.121	0.18	39	0.020
Mercury (filtered)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1
Nickel (filtered)	µg/L	1	8	8	0	8	12	40	3
Phosphorus	mg/L	0.05	-	-	-	-	<0.05	-	-
Zinc (filtered)	µg/L	1	9	10	11	9	14	43	5
BTEX									
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<1
Toluene	µg/L	1	<2	<2	0	<2	<1	0	<2
Ethylbenzene	µg/L	1	<2	<2	0	<2	<1	0	<2
Xylene (m & p)	µg/L	2	<2	<2	0	<2	<2	0	<2
Xylene (o)	µg/L	1	<2	<2	0	<2	<1	0	<2
Xylene Total	µg/L	2	<2	<2	0	<2	-	-	<2
Naphthalene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	2.4
Naphthalene (BTEX)	µg/L	1	<5	<5	0	<5	<1	0	<5
Total BTEX	µg/L	1	<1	<1	0	<1	-	-	<1
TRH									
C6-C10	µg/L	10	<20	<20	0	<20	<10	0	<20
C6-C10 (F1 minus BTEX)	µg/L	10	<20	<20	0	<20	<10	0	<20
C10-C16	µg/L	50	<100	<100	0	<100	<50	0	<100
C10-C16 (F2 minus Naphthalene)	µg/L	50	<100	<100	0	<100	<50	0	<100
C16-C34	µg/L	100	<100	<100	0	<100	<100	0	<100
C34-C40	µg/L	100	<100	<100	0	<100	<100	0	<100
C10-C40 (Sum of total)	µg/L	50	<100	<100	0	<100	<50	0	<100
MAH									
1,2,4-trimethylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
1,3,5-trimethylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
Isopropylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
n-butylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
n-propylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
p-isopropyltoluene	µg/L	1	<5	<5	0	<5	<1	0	<5
sec-butylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
Styrene	µg/L	1	<5	<5	0	<5	<1	0	<5
tert-butylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
Halogenated Hydrocarbons									
1,2-dibromoethane	µg/L	1	<5	<5	0	<5	<1	0	<5
Bromomethane	µg/L	10	<50	<50	0	<50	<10	0	<50
Dichlorodifluoromethane	µg/L	10	<50	<50	0	<50	<10	0	<50
Iodomethane	µg/L	5	<5	<5	0	<5	-	-	<5
Trichlorofluoromethane	µg/L	10	<50	<50	0	<50	<10	0	<50
Chlorinated Hydrocarbons									
1,1,1,2-tetrachloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,1,1-trichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,1,2,2-tetrachloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,1,2-trichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,1-dichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,1-dichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5
1,1-dichloropropene	µg/L	1	<5	<5	0	<5	<1	0	<5

Table T13. RPD Summary Table

		Lab Report Number	ES2426006	ES2426006		ES2426006	358929		ES2426449
		Field ID	CZ5_MW09	QC01		CZ5_MW09	QC02		PM_BH15_W
		Date	06 Aug 2024	06 Aug 2024		06 Aug 2024	06 Aug 2024		12 Aug 2024
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water
	Unit	EQL							
1,2,3-trichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,2-dibromo-3-chloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,2-dichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,2-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5
1,3-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5
2,2-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5
Bromochloromethane	µg/L	1	-	-	-	-	<1	-	-
Bromodichloromethane	µg/L	1	<5	<5	0	<5	<1	0	<5
Bromoform	µg/L	1	<5	<5	0	<5	<1	0	<5
Carbon tetrachloride	µg/L	1	<5	<5	0	<5	<1	0	<5
Chlorodibromomethane	µg/L	1	<5	<5	0	<5	<1	0	<5
Chloroethane	µg/L	10	<50	<50	0	<50	<10	0	<50
Chloroform	µg/L	1	<5	<5	0	<5	<1	0	<5
Chloromethane	µg/L	10	<50	<50	0	<50	<10	0	<50
cis-1,2-dichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5
cis-1,3-dichloropropene	µg/L	1	<5	<5	0	<5	<1	0	<5
Dibromomethane	µg/L	1	<5	<5	0	<5	<1	0	<5
Hexachlorobutadiene	µg/L	1	<5	<5	0	<5	<1	0	<5
Trichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5
Tetrachloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5
trans-1,2-dichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5
trans-1,3-dichloropropene	µg/L	1	<5	<5	0	<5	<1	0	<5
Vinyl chloride	µg/L	10	<50	<50	0	<50	<10	0	<50
Halogenated Benzenes									
1,2,3-trichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
1,2,4-trichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
1,2-dichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
1,3-dichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
1,4-dichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
2-chlorotoluene	µg/L	1	<5	<5	0	<5	<1	0	<5
4-chlorotoluene	µg/L	1	<5	<5	0	<5	<1	0	<5
Bromobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
Chlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5
Hexachlorobenzene	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
VOCs									
cis-1,4-Dichloro-2-butene	µg/L	5	<5	<5	0	<5	-	-	<5
trans-1,4-Dichloro-2-butene	µg/L	5	<5	<5	0	<5	-	-	<5
Pentachloroethane	µg/L	5	<5	<5	0	<5	-	-	<5
PAH									
Benzo(b+j+k)fluoranthene	mg/L	0.0002	-	-	-	-	<0.0002	-	-
Acenaphthene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Acenaphthylene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Anthracene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Benz(a)anthracene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Benzo(a) pyrene	µg/L	0.1	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Benzo(b+j)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	-	-	<1.0
Benzo(g,h,i)perylene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	-	-	<1.0
Chrysene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Dibenz(a,h)anthracene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Fluoranthene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Fluorene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Phenanthrene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Pyrene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0
Benzo(a)pyrene TEQ	mg/L	0.0005	-	-	-	-	<0.0005	-	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.0005	<0.0005	<0.0005	0	<0.0005	-	-	<0.0005
PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	2.4
PAHs (Sum of positives)	mg/L	0.0001	-	-	-	-	<0.0001	-	-
TPH									
C6-C9	µg/L	10	<20	<20	0	<20	<10	0	<20
C10-C14	µg/L	50	<50	<50	0	<50	<50	0	<50
C15-C28	µg/L	100	<100	<100	0	<100	<100	0	<100
C29-C36	µg/L	50	<50	<50	0	<50	<100	0	<50
C10-C36 (Sum of total)	µg/L	50	<50	<50	0	<50	<50	0	<50
PCBs									
Arochlor 1016	µg/L	2	-	-	-	-	<2	-	-
Arochlor 1221	µg/L	2	-	-	-	-	<2	-	-
Arochlor 1232	µg/L	2	-	-	-	-	<2	-	-
Arochlor 1242	µg/L	2	-	-	-	-	<2	-	-
Arochlor 1248	µg/L	2	-	-	-	-	<2	-	-
Arochlor 1254	µg/L	2	-	-	-	-	<2	-	-
Arochlor 1260	µg/L	2	-	-	-	-	<2	-	-
PCBs (Sum of total)	µg/L	1	<1	<1	0	<1	-	-	<1
Organochlorine Pesticides									
4,4-DDE	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
a-BHC	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Aldrin + Dieldrin	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Aldrin	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
b-BHC	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Chlordane	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Chlordane (cis)	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Chlordane (trans)	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
d-BHC	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
DDD	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
DDT	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0
DDT+DDE+DDD	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Dieldrin	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Endosulfan I	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Endosulfan II	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Endosulfan sulphate	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5

		Lab Report Number	ES2426006	ES2426006		ES2426006	358929		ES2426449
		Field ID	CZ5_MW09	QC01		CZ5_MW09	QC02		PM_BH15_W
		Date	06 Aug 2024	06 Aug 2024		06 Aug 2024	06 Aug 2024		12 Aug 2024
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water
	Unit	EQL							
Endrin	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Endrin aldehyde	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Endrin ketone	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
g-BHC (Lindane)	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Heptachlor	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Heptachlor epoxide	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Methoxychlor	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0
Organophosphorous Pesticides									
Azinophos methyl	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Bromophos-ethyl	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Carbophenothion	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Chlorfenvinphos	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Chlorpyrifos	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Chlorpyrifos-methyl	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Coumaphos	µg/L	0.2	-	-	-	-	<0.2	-	-
Demeton-S-methyl	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Diazinon	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Dichlorvos	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Dimethoate	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Disulfoton	µg/L	0.2	-	-	-	-	<0.2	-	-
Ethion	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Fenitrothion	µg/L	0.2	-	-	-	-	<0.2	-	-
Fenamiphos	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Fenthion	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Malathion	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
Mevinphos (Phosdrin)	µg/L	0.2	-	-	-	-	<0.2	-	-
Methyl parathion	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0
Monocrotophos	µg/L	2	<2.0	<2.0	0	<2.0	-	-	<2.0
Parathion	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0
Phorate	µg/L	0.2	-	-	-	-	<0.2	-	-
Prothiofos	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Ronnel	µg/L	0.2	-	-	-	-	<0.2	-	-
Pesticides									
Pirimphos-ethyl	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5
Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	0.15	0.15	0	0.15	-	-	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.14	0.16	13	0.14	0.16	13	0.02
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.03
Sum of PFHxS and PFOS	µg/L	0.01	0.14	0.16	13	0.14	0.16	13	0.05
Perfluoroalkyl Carboxylic Acid									
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	0	<0.1	-	-	<0.1
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	0.13
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	0.06	0.06	0	0.06	-	-	0.09
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	0.03
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.07
Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.05	<0.05	0	<0.05	<0.02	0	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05
PFAS Totals									
Sum of PFAS (WA DER List)	µg/L	0.01	0.35	0.37	6	0.35	-	-	0.37
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	-	-	-	-	<0.01	-	-
Sum of PFAS	µg/L	0.01	-	-	-	-	0.16	-	-
Solvents									
Methyl Ethyl Ketone	µg/L	50	<50	<50	0	<50	-	-	<50
2-hexanone (MBK)	µg/L	50	<50	<50	0	<50	-	-	<50
4-Methyl-2-pentanone	µg/L	50	<50	<50	0	<50	-	-	<50
Carbon disulfide	µg/L	5	<5	<5	0	<5	-	-	<5
Cyclohexane	mg/L	0.001	-	-	-	-	<0.001	-	-
Vinyl acetate	µg/L	50	<50	<50	0	<50	-	-	<50

***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: 50 (1 - 10 x EQL); 50 (10 - 30 x EQL); 50 (> 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**

Table T13. RPD Summary Table

		Lab Report Number	ES2426449		ES2426449	359175		ES2427457	ES2427457
		Field ID	QC03		PM_BH15_W	QC04		SMW_BH057_S	QC05
		Date	12 Aug 2024		12 Aug 2024	12 Aug 2024		19 Aug 2024	19 Aug 2024
		Matrix Type	Water	RPD	Water	Water	RPD	Water	Water
	Unit	EQL							
Physico-Chemical & Major Ions									
Redox Potential (Lab)	mV	0.1	-	-	126	-	-	73.1	-
pH Redox	-	0.01	-	-	5.96	-	-	6.34	-
pH (Lab)	-	0.01	-	-	6.61	-	-	6.74	-
Electrical Conductivity (Lab)	µS/cm	1	-	-	959	-	-	567	-
Dissolved Oxygen	mg/L	0.1	-	-	7.6	-	-	5.5	-
TDS	mg/L	10	-	-	626	-	-	330	-
Chloride	mg/L	1	-	-	166	-	-	36	-
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	1	-	-	203	-	-	80	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	-	-	<1	-	-	<1	-
Carbonate as CaCO3	mg/L	1	-	-	<1	-	-	<1	-
Bicarbonate as CaCO3	mg/L	1	-	-	42	-	-	139	-
Alkalinity (total) as CaCO3	mg/L	1	-	-	42	-	-	139	-
Calcium (filtered)	mg/L	1	-	-	13	-	-	13	-
Magnesium (filtered)	mg/L	1	-	-	11	-	-	20	-
Sodium (filtered)	mg/L	1	-	-	106	-	-	72	-
Potassium (filtered)	mg/L	1	-	-	6	-	-	12	-
Anions Total	meq/L	0.01	-	-	9.75	-	-	5.46	-
Cations Total	meq/L	0.01	-	-	6.32	-	-	5.73	-
Ionic Balance	%	0.01	-	-	21.3	-	-	2.46	-
Hardness as CaCO3 (filtered)	mg/L	1	-	-	78	-	-	115	-
Nutrients									
Ammonia as N	mg/L	0.01	-	-	0.04	-	-	0.02	-
Kjeldahl Nitrogen Total	mg/L	0.1	-	-	0.8	-	-	0.2	-
Nitrate (as N)	mg/L	0.01	-	-	0.11	-	-	0.09	-
Nitrite (as N)	mg/L	0.01	-	-	<0.01	-	-	<0.01	-
Nitrite + Nitrate as N	mg/L	0.01	-	-	0.11	-	-	0.09	-
Nitrogen (Total)	mg/L	0.1	-	-	0.9	-	-	0.3	-
Total Phosphorus as P (Organic Phosphate as P)	mg/L	0.01	-	-	0.40	-	-	0.04	0.02
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	0.01	-	-	<0.01	-	-	<0.01	-
Metals									
Aluminium (filtered)	mg/L	0.01	-	-	-	-	-	-	-
Arsenic (filtered)	µg/L	1	1	0	<1	1	0	<1	<1
Cadmium (filtered)	µg/L	0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1
Chromium (hexavalent) (filtered)	mg/L	0.005	<0.01	0	<0.01	<0.005	0	<0.01	<0.01
Chromium (Trivalent)	mg/L	0.005	-	-	-	<0.005	-	-	-
Chromium (Trivalent) (filtered)	mg/L	0.005	<0.01	0	<0.01	-	-	<0.01	<0.01
Chromium (III+VI) (filtered)	µg/L	1	<1	0	<1	1	0	<1	<1
Copper (filtered)	µg/L	1	2	67	<1	4	120	16	16
Iron (filtered)	mg/L	0.01	1.16	18	0.97	1.6	49	<0.05	<0.05
Lead (filtered)	µg/L	1	1	0	<1	2	67	<1	<1
Manganese (filtered)	mg/L	0.001	0.020	0	0.020	0.027	30	0.082	0.083
Mercury (filtered)	µg/L	0.05	<0.1	0	<0.1	<0.05	0	<0.1	<0.1
Nickel (filtered)	µg/L	1	3	0	3	3	0	1	<1
Phosphorus	mg/L	0.05	-	-	-	<0.05	-	-	-
Zinc (filtered)	µg/L	1	10	67	5	13	89	<5	<5
BTEX									
Benzene	µg/L	1	<1	0	<1	<1	0	<1	<1
Toluene	µg/L	1	<2	0	<2	<1	0	<2	<2
Ethylbenzene	µg/L	1	<2	0	<2	<1	0	<2	<2
Xylene (m & p)	µg/L	2	<2	0	<2	<2	0	<2	<2
Xylene (o)	µg/L	1	<2	0	<2	<1	0	<2	<2
Xylene Total	µg/L	2	<2	0	<2	-	-	<2	<2
Naphthalene	µg/L	0.1	1.8	29	2.4	<0.1	184	<1.0	<1.0
Naphthalene (BTEX)	µg/L	1	<5	0	<5	<1	0	<5	<5
Total BTEX	µg/L	1	<1	0	<1	-	-	<1	<1
TRH									
C6-C10	µg/L	10	<20	0	<20	<10	0	<20	<20
C6-C10 (F1 minus BTEX)	µg/L	10	<20	0	<20	<10	0	<20	<20
C10-C16	µg/L	50	<100	0	<100	<50	0	<100	<100
C10-C16 (F2 minus Naphthalene)	µg/L	50	<100	0	<100	<50	0	<100	<100
C16-C34	µg/L	100	<100	0	<100	<100	0	<100	<100
C34-C40	µg/L	100	<100	0	<100	<100	0	<100	<100
C10-C40 (Sum of total)	µg/L	50	<100	0	<100	<50	0	<100	<100
MAH									
1,2,4-trimethylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
1,3,5-trimethylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
Isopropylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
n-butylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
n-propylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
p-isopropyltoluene	µg/L	1	<5	0	<5	<1	0	<5	<5
sec-butylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
Styrene	µg/L	1	<5	0	<5	<1	0	<5	<5
tert-butylbenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
Halogenated Hydrocarbons									
1,2-dibromoethane	µg/L	1	<5	0	<5	<1	0	<5	<5
Bromomethane	µg/L	10	<50	0	<50	<10	0	<50	<50
Dichlorodifluoromethane	µg/L	10	<50	0	<50	<10	0	<50	<50
Iodomethane	µg/L	5	<5	0	<5	-	-	<5	<5
Trichlorofluoromethane	µg/L	10	<50	0	<50	<10	0	<50	<50
Chlorinated Hydrocarbons									
1,1,1,2-tetrachloroethane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,1,1-trichloroethane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,1,2,2-tetrachloroethane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,1,2-trichloroethane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,1-dichloroethane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,1-dichloroethene	µg/L	1	<5	0	<5	<1	0	<5	<5
1,1-dichloropropene	µg/L	1	<5	0	<5	<1	0	<5	<5

Table T13. RPD Summary Table

	Unit	EQL	ES2426449	RPD	ES2426449	359175	RPD	ES2427457	ES2427457
Lab Report Number			ES2426449		ES2426449	359175		ES2427457	ES2427457
Field ID			QC03		PM_BH15_W	QC04		SMW_BH057_S	QC05
Date			12 Aug 2024		12 Aug 2024	12 Aug 2024		19 Aug 2024	19 Aug 2024
Matrix Type			Water	RPD	Water	Water	RPD	Water	Water
1,2,3-trichloropropane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,2-dibromo-3-chloropropane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,2-dichloroethane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,2-dichloropropane	µg/L	1	<5	0	<5	<1	0	<5	<5
1,3-dichloropropane	µg/L	1	<5	0	<5	<1	0	<5	<5
2,2-dichloropropane	µg/L	1	<5	0	<5	<1	0	<5	<5
Bromochloromethane	µg/L	1	-	-	-	<1	-	-	-
Bromodichloromethane	µg/L	1	<5	0	<5	<1	0	<5	<5
Bromoform	µg/L	1	<5	0	<5	<1	0	<5	<5
Carbon tetrachloride	µg/L	1	<5	0	<5	<1	0	<5	<5
Chlorodibromomethane	µg/L	1	<5	0	<5	<1	0	<5	<5
Chloroethane	µg/L	10	<50	0	<50	<10	0	<50	<50
Chloroform	µg/L	1	<5	0	<5	<1	0	<5	<5
Chloromethane	µg/L	10	<50	0	<50	<10	0	<50	<50
cis-1,2-dichloroethene	µg/L	1	<5	0	<5	<1	0	<5	<5
cis-1,3-dichloropropene	µg/L	1	<5	0	<5	<1	0	<5	<5
Dibromomethane	µg/L	1	<5	0	<5	<1	0	<5	<5
Hexachlorobutadiene	µg/L	1	<5	0	<5	<1	0	<5	<5
Trichloroethene	µg/L	1	<5	0	<5	<1	0	<5	<5
Tetrachloroethene	µg/L	1	<5	0	<5	<1	0	<5	<5
trans-1,2-dichloroethene	µg/L	1	<5	0	<5	<1	0	<5	<5
trans-1,3-dichloropropene	µg/L	1	<5	0	<5	<1	0	<5	<5
Vinyl chloride	µg/L	10	<50	0	<50	<10	0	<50	<50
Halogenated Benzenes									
1,2,3-trichlorobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
1,2,4-trichlorobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
1,2-dichlorobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
1,3-dichlorobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
1,4-dichlorobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
2-chlorotoluene	µg/L	1	<5	0	<5	<1	0	<5	<5
4-chlorotoluene	µg/L	1	<5	0	<5	<1	0	<5	<5
Bromobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
Chlorobenzene	µg/L	1	<5	0	<5	<1	0	<5	<5
Hexachlorobenzene	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
VOCs									
cis-1,4-Dichloro-2-butene	µg/L	5	<5	0	<5	-	-	<5	<5
trans-1,4-Dichloro-2-butene	µg/L	5	<5	0	<5	-	-	<5	<5
Pentachloroethane	µg/L	5	<5	0	<5	-	-	<5	<5
PAH									
Benzo(b+j+k)fluoranthene	mg/L	0.0002	-	-	-	<0.0002	-	-	-
Acenaphthene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Acenaphthylene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Anthracene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Benz(a)anthracene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Benzo(a) pyrene	µg/L	0.1	<0.5	0	<0.5	<0.1	0	<0.5	<0.5
Benzo(b+j)fluoranthene	µg/L	1	<1.0	0	<1.0	-	-	<1.0	<1.0
Benzo(g,h,i)perylene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Benzo(k)fluoranthene	µg/L	1	<1.0	0	<1.0	-	-	<1.0	<1.0
Chrysene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Dibenz(a,h)anthracene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Fluoranthene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Fluorene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Phenanthrene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Pyrene	µg/L	0.1	<1.0	0	<1.0	<0.1	0	<1.0	<1.0
Benzo(a)pyrene TEQ	mg/L	0.0005	-	-	-	<0.0005	-	-	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.0005	<0.0005	0	<0.0005	-	-	<0.0005	<0.0005
PAHs (Sum of total)	µg/L	0.5	1.8	29	2.4	-	-	<0.5	<0.5
PAHs (Sum of positives)	mg/L	0.0001	-	-	-	<0.0001	-	-	-
TPH									
C6-C9	µg/L	10	<20	0	<20	<10	0	<20	<20
C10-C14	µg/L	50	<50	0	<50	<50	0	<50	<50
C15-C28	µg/L	100	<100	0	<100	<100	0	<100	<100
C29-C36	µg/L	50	<50	0	<50	<100	0	<50	<50
C10-C36 (Sum of total)	µg/L	50	<50	0	<50	<50	0	<50	<50
PCBs									
Arochlor 1016	µg/L	2	-	-	-	<2	-	-	-
Arochlor 1221	µg/L	2	-	-	-	<2	-	-	-
Arochlor 1232	µg/L	2	-	-	-	<2	-	-	-
Arochlor 1242	µg/L	2	-	-	-	<2	-	-	-
Arochlor 1248	µg/L	2	-	-	-	<2	-	-	-
Arochlor 1254	µg/L	2	-	-	-	<2	-	-	-
Arochlor 1260	µg/L	2	-	-	-	<2	-	-	-
PCBs (Sum of total)	µg/L	1	<1	0	<1	-	-	<1	<1
Organochlorine Pesticides									
4,4-DDE	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
a-BHC	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Aldrin + Dieldrin	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Aldrin	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
b-BHC	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Chlordane	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Chlordane (cis)	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Chlordane (trans)	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
d-BHC	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
DDD	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
DDT	µg/L	0.2	<2.0	0	<2.0	<0.2	0	<2.0	<2.0
DDT+DDE+DDD	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Dieldrin	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Endosulfan I	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Endosulfan II	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Endosulfan sulphate	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5

Table T13. RPD Summary Table

		Lab Report Number	ES2426449		ES2426449	359175		ES2427457	ES2427457
		Field ID	QC03		PM_BH15_W	QC04		SMW_BH057_S	QC05
		Date	12 Aug 2024		12 Aug 2024	12 Aug 2024		19 Aug 2024	19 Aug 2024
		Matrix Type	Water	RPD	Water	Water	RPD	Water	Water
	Unit	EQL							
Endrin	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Endrin aldehyde	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Endrin ketone	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
g-BHC (Lindane)	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Heptachlor	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Heptachlor epoxide	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Methoxychlor	µg/L	0.2	<2.0	0	<2.0	<0.2	0	<2.0	<2.0
Organophosphorous Pesticides									
Azinophos methyl	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Bromophos-ethyl	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Carbophenothion	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Chlorfenvinphos	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Chlorpyrifos	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Coumaphos	µg/L	0.2	-	-	-	<0.2	-	-	-
Demeton-S-methyl	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Diazinon	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Dichlorvos	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Dimethoate	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Disulfoton	µg/L	0.2	-	-	-	<0.2	-	-	-
Ethion	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Fenitrothion	µg/L	0.2	-	-	-	<0.2	-	-	-
Fenamiphos	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Fenthion	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Malathion	µg/L	0.2	<0.5	0	<0.5	<0.2	0	<0.5	<0.5
Mevinphos (Phosdrin)	µg/L	0.2	-	-	-	<0.2	-	-	-
Methyl parathion	µg/L	0.2	<2.0	0	<2.0	<0.2	0	<2.0	<2.0
Monocrotophos	µg/L	2	<2.0	0	<2.0	-	-	<2.0	<2.0
Parathion	µg/L	0.2	<2.0	0	<2.0	<0.2	0	<2.0	<2.0
Phorate	µg/L	0.2	-	-	-	<0.2	-	-	-
Prothiofos	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Ronnel	µg/L	0.2	-	-	-	<0.2	-	-	-
Pesticides									
Pirimphos-ethyl	µg/L	0.5	<0.5	0	<0.5	-	-	<0.5	<0.5
Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	0	<0.02	-	-	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.02	0	0.02	0.01	67	0.01	0.01
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	0.03	0	0.03	0.02	40	0.02	0.02
Sum of PFHxS and PFOS	µg/L	0.01	0.05	0	0.05	0.04	22	0.03	0.03
Perfluoroalkyl Carboxylic Acid									
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	0	<0.1	-	-	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.14	7	0.13	-	-	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	0.12	29	0.09	-	-	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	0.03	0	0.03	-	-	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.07	0	0.07	0.08	13	<0.01	<0.01
Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	0	<0.05	-	-	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.01	<0.05	0	<0.05	<0.01	0	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.05	0	<0.05	<0.02	0	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	0	<0.05	-	-	<0.05	<0.05
PFAS Totals									
Sum of PFAS (WA DER List)	µg/L	0.01	0.41	10	0.37	-	-	0.03	0.03
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	-	-	-	0.10	-	-	-
Sum of PFAS	µg/L	0.01	-	-	-	0.12	-	-	-
Solvents									
Methyl Ethyl Ketone	µg/L	50	<50	0	<50	-	-	<50	<50
2-hexanone (MBK)	µg/L	50	<50	0	<50	-	-	<50	<50
4-Methyl-2-pentanone	µg/L	50	<50	0	<50	-	-	<50	<50
Carbon disulfide	µg/L	5	<5	0	<5	-	-	<5	<5
Cyclohexane	mg/L	0.001	-	-	-	<0.001	-	-	-
Vinyl acetate	µg/L	50	<50	0	<50	-	-	<50	<50

***RPDs have only been considered where a concentration is greater than 1 times t**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs f**
*****Interlab Duplicates are matched on a per compound basis as methods vary be**

Table T13. RPD Summary Table

		Lab Report Number		ES2427457	359802	
		Field ID		SMW_BH057_S	QC06	
		Date		19 Aug 2024	19 Aug 2024	
		Matrix Type	RPD	Water	Water	RPD
	Unit	EQL				
Physico-Chemical & Major Ions						
Redox Potential (Lab)	mV	0.1	-	73.1	-	-
pH Redox	-	0.01	-	6.34	-	-
pH (Lab)	-	0.01	-	6.74	-	-
Electrical Conductivity (Lab)	µS/cm	1	-	567	-	-
Dissolved Oxygen	mg/L	0.1	-	5.5	-	-
TDS	mg/L	10	-	330	-	-
Chloride	mg/L	1	-	36	-	-
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	1	-	80	-	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	-	<1	-	-
Carbonate as CaCO3	mg/L	1	-	<1	-	-
Bicarbonate as CaCO3	mg/L	1	-	139	-	-
Alkalinity (total) as CaCO3	mg/L	1	-	139	-	-
Calcium (filtered)	mg/L	1	-	13	-	-
Magnesium (filtered)	mg/L	1	-	20	-	-
Sodium (filtered)	mg/L	1	-	72	-	-
Potassium (filtered)	mg/L	1	-	12	-	-
Anions Total	meq/L	0.01	-	5.46	-	-
Cations Total	meq/L	0.01	-	5.73	-	-
Ionic Balance	%	0.01	-	2.46	-	-
Hardness as CaCO3 (filtered)	mg/L	1	-	115	-	-
Nutrients						
Ammonia as N	mg/L	0.01	-	0.02	-	-
Kjeldahl Nitrogen Total	mg/L	0.1	-	0.2	-	-
Nitrate (as N)	mg/L	0.01	-	0.09	-	-
Nitrite (as N)	mg/L	0.01	-	<0.01	-	-
Nitrite + Nitrate as N	mg/L	0.01	-	0.09	-	-
Nitrogen (Total)	mg/L	0.1	-	0.3	-	-
Total Phosphorus as P (Organic Phosphate as P)	mg/L	0.01	67	0.04	-	-
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	0.01	-	<0.01	-	-
Metals						
Aluminium (filtered)	mg/L	0.01	-	-	-	-
Arsenic (filtered)	µg/L	1	0	<1	<1	0
Cadmium (filtered)	µg/L	0.1	0	<0.1	<0.1	0
Chromium (hexavalent) (filtered)	mg/L	0.005	0	<0.01	<0.005	0
Chromium (Trivalent)	mg/L	0.005	-	-	<0.005	-
Chromium (Trivalent) (filtered)	mg/L	0.005	0	<0.01	-	-
Chromium (III+VI) (filtered)	µg/L	1	0	<1	<1	0
Copper (filtered)	µg/L	1	0	16	21	27
Iron (filtered)	mg/L	0.01	0	<0.05	0.01	0
Lead (filtered)	µg/L	1	0	<1	<1	0
Manganese (filtered)	mg/L	0.001	1	0.082	0.1	20
Mercury (filtered)	µg/L	0.05	0	<0.1	<0.05	0
Nickel (filtered)	µg/L	1	0	1	<1	0
Phosphorus	mg/L	0.05	-	-	<0.05	-
Zinc (filtered)	µg/L	1	0	<5	3	0
BTEX						
Benzene	µg/L	1	0	<1	<1	0
Toluene	µg/L	1	0	<2	<1	0
Ethylbenzene	µg/L	1	0	<2	<1	0
Xylene (m & p)	µg/L	2	0	<2	<2	0
Xylene (o)	µg/L	1	0	<2	<1	0
Xylene Total	µg/L	2	0	<2	-	-
Naphthalene	µg/L	0.1	0	<1.0	<0.1	0
Naphthalene (BTEX)	µg/L	1	0	<5	<1	0
Total BTEX	µg/L	1	0	<1	-	-
TRH						
C6-C10	µg/L	10	0	<20	<10	0
C6-C10 (F1 minus BTEX)	µg/L	10	0	<20	<10	0
C10-C16	µg/L	50	0	<100	<50	0
C10-C16 (F2 minus Naphthalene)	µg/L	50	0	<100	<50	0
C16-C34	µg/L	100	0	<100	<100	0
C34-C40	µg/L	100	0	<100	<100	0
C10-C40 (Sum of total)	µg/L	50	0	<100	<50	0
MAH						
1,2,4-trimethylbenzene	µg/L	1	0	<5	<1	0
1,3,5-trimethylbenzene	µg/L	1	0	<5	<1	0
Isopropylbenzene	µg/L	1	0	<5	<1	0
n-butylbenzene	µg/L	1	0	<5	<1	0
n-propylbenzene	µg/L	1	0	<5	<1	0
p-isopropyltoluene	µg/L	1	0	<5	<1	0
sec-butylbenzene	µg/L	1	0	<5	<1	0
Styrene	µg/L	1	0	<5	<1	0
tert-butylbenzene	µg/L	1	0	<5	<1	0
Halogenated Hydrocarbons						
1,2-dibromoethane	µg/L	1	0	<5	<1	0
Bromomethane	µg/L	10	0	<50	<10	0
Dichlorodifluoromethane	µg/L	10	0	<50	<10	0
Iodomethane	µg/L	5	0	<5	-	-
Trichlorofluoromethane	µg/L	10	0	<50	<10	0
Chlorinated Hydrocarbons						
1,1,1,2-tetrachloroethane	µg/L	1	0	<5	<1	0
1,1,1-trichloroethane	µg/L	1	0	<5	<1	0
1,1,2,2-tetrachloroethane	µg/L	1	0	<5	<1	0
1,1,2-trichloroethane	µg/L	1	0	<5	<1	0
1,1-dichloroethane	µg/L	1	0	<5	<1	0
1,1-dichloroethene	µg/L	1	0	<5	<1	0
1,1-dichloropropene	µg/L	1	0	<5	<1	0

Table T13. RPD Summary Table

		Lab Report Number		ES2427457	359802	
		Field ID		SMW_BH057_S	QC06	
		Date		19 Aug 2024	19 Aug 2024	
		Matrix Type	RPD	Water	Water	RPD
	Unit	EQL				
1,2,3-trichloropropane	µg/L	1	0	<5	<1	0
1,2-dibromo-3-chloropropane	µg/L	1	0	<5	<1	0
1,2-dichloroethane	µg/L	1	0	<5	<1	0
1,2-dichloropropane	µg/L	1	0	<5	<1	0
1,3-dichloropropane	µg/L	1	0	<5	<1	0
2,2-dichloropropane	µg/L	1	0	<5	<1	0
Bromochloromethane	µg/L	1	-	-	<1	-
Bromodichloromethane	µg/L	1	0	<5	<1	0
Bromoform	µg/L	1	0	<5	<1	0
Carbon tetrachloride	µg/L	1	0	<5	<1	0
Chlorodibromomethane	µg/L	1	0	<5	<1	0
Chloroethane	µg/L	10	0	<50	<10	0
Chloroform	µg/L	1	0	<5	<1	0
Chloromethane	µg/L	10	0	<50	<10	0
cis-1,2-dichloroethene	µg/L	1	0	<5	<1	0
cis-1,3-dichloropropene	µg/L	1	0	<5	<1	0
Dibromomethane	µg/L	1	0	<5	<1	0
Hexachlorobutadiene	µg/L	1	0	<5	<1	0
Trichloroethene	µg/L	1	0	<5	<1	0
Tetrachloroethene	µg/L	1	0	<5	<1	0
trans-1,2-dichloroethene	µg/L	1	0	<5	<1	0
trans-1,3-dichloropropene	µg/L	1	0	<5	<1	0
Vinyl chloride	µg/L	10	0	<50	<10	0
Halogenated Benzenes						
1,2,3-trichlorobenzene	µg/L	1	0	<5	<1	0
1,2,4-trichlorobenzene	µg/L	1	0	<5	<1	0
1,2-dichlorobenzene	µg/L	1	0	<5	<1	0
1,3-dichlorobenzene	µg/L	1	0	<5	<1	0
1,4-dichlorobenzene	µg/L	1	0	<5	<1	0
2-chlorotoluene	µg/L	1	0	<5	<1	0
4-chlorotoluene	µg/L	1	0	<5	<1	0
Bromobenzene	µg/L	1	0	<5	<1	0
Chlorobenzene	µg/L	1	0	<5	<1	0
Hexachlorobenzene	µg/L	0.2	0	<0.5	<0.2	0
VOCs						
cis-1,4-Dichloro-2-butene	µg/L	5	0	<5	-	-
trans-1,4-Dichloro-2-butene	µg/L	5	0	<5	-	-
Pentachloroethane	µg/L	5	0	<5	-	-
PAH						
Benzo(b+j+k)fluoranthene	mg/L	0.0002	-	-	<0.0002	-
Acenaphthene	µg/L	0.1	0	<1.0	<0.1	0
Acenaphthylene	µg/L	0.1	0	<1.0	<0.1	0
Anthracene	µg/L	0.1	0	<1.0	<0.1	0
Benz(a)anthracene	µg/L	0.1	0	<1.0	<0.1	0
Benzo(a) pyrene	µg/L	0.1	0	<0.5	<0.1	0
Benzo(b+j)fluoranthene	µg/L	1	0	<1.0	-	-
Benzo(g,h,i)perylene	µg/L	0.1	0	<1.0	<0.1	0
Benzo(k)fluoranthene	µg/L	1	0	<1.0	-	-
Chrysene	µg/L	0.1	0	<1.0	<0.1	0
Dibenz(a,h)anthracene	µg/L	0.1	0	<1.0	<0.1	0
Fluoranthene	µg/L	0.1	0	<1.0	<0.1	0
Fluorene	µg/L	0.1	0	<1.0	<0.1	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	0	<1.0	<0.1	0
Phenanthrene	µg/L	0.1	0	<1.0	<0.1	0
Pyrene	µg/L	0.1	0	<1.0	<0.1	0
Benzo(a)pyrene TEQ	mg/L	0.0005	-	-	<0.0005	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.0005	0	<0.0005	-	-
PAHs (Sum of total)	µg/L	0.5	0	<0.5	-	-
PAHs (Sum of positives)	mg/L	0.0001	-	-	<0.0001	-
TPH						
C6-C9	µg/L	10	0	<20	<10	0
C10-C14	µg/L	50	0	<50	<50	0
C15-C28	µg/L	100	0	<100	<100	0
C29-C36	µg/L	50	0	<50	<100	0
C10-C36 (Sum of total)	µg/L	50	0	<50	<50	0
PCBs						
Arochlor 1016	µg/L	2	-	-	<2	-
Arochlor 1221	µg/L	2	-	-	<2	-
Arochlor 1232	µg/L	2	-	-	<2	-
Arochlor 1242	µg/L	2	-	-	<2	-
Arochlor 1248	µg/L	2	-	-	<2	-
Arochlor 1254	µg/L	2	-	-	<2	-
Arochlor 1260	µg/L	2	-	-	<2	-
PCBs (Sum of total)	µg/L	1	0	<1	-	-
Organochlorine Pesticides						
4,4-DDE	µg/L	0.2	0	<0.5	<0.2	0
a-BHC	µg/L	0.2	0	<0.5	<0.2	0
Aldrin + Dieldrin	µg/L	0.5	0	<0.5	-	-
Aldrin	µg/L	0.2	0	<0.5	<0.2	0
b-BHC	µg/L	0.2	0	<0.5	<0.2	0
Chlordane	µg/L	0.5	0	<0.5	-	-
Chlordane (cis)	µg/L	0.2	0	<0.5	<0.2	0
Chlordane (trans)	µg/L	0.2	0	<0.5	<0.2	0
d-BHC	µg/L	0.2	0	<0.5	<0.2	0
DDD	µg/L	0.2	0	<0.5	<0.2	0
DDT	µg/L	0.2	0	<2.0	<0.2	0
DDT+DDE+DDD	µg/L	0.5	0	<0.5	-	-
Dieldrin	µg/L	0.2	0	<0.5	<0.2	0
Endosulfan I	µg/L	0.2	0	<0.5	<0.2	0
Endosulfan II	µg/L	0.2	0	<0.5	<0.2	0
Endosulfan sulphate	µg/L	0.2	0	<0.5	<0.2	0

Table T13. RPD Summary Table

		Lab Report Number		ES2427457	359802	
		Field ID		SMW_BH057_S	QC06	
		Date		19 Aug 2024	19 Aug 2024	
		Matrix Type	RPD	Water	Water	RPD
	Unit	EQL				
Endrin	µg/L	0.2	0	<0.5	<0.2	0
Endrin aldehyde	µg/L	0.2	0	<0.5	<0.2	0
Endrin ketone	µg/L	0.5	0	<0.5	-	-
g-BHC (Lindane)	µg/L	0.2	0	<0.5	<0.2	0
Heptachlor	µg/L	0.2	0	<0.5	<0.2	0
Heptachlor epoxide	µg/L	0.2	0	<0.5	<0.2	0
Methoxychlor	µg/L	0.2	0	<2.0	<0.2	0
Organophosphorous Pesticides						
Azinophos methyl	µg/L	0.2	0	<0.5	<0.2	0
Bromophos-ethyl	µg/L	0.2	0	<0.5	<0.2	0
Carbophenothion	µg/L	0.5	0	<0.5	-	-
Chlorfenvinphos	µg/L	0.5	0	<0.5	-	-
Chlorpyrifos	µg/L	0.2	0	<0.5	<0.2	0
Chlorpyrifos-methyl	µg/L	0.2	0	<0.5	<0.2	0
Coumaphos	µg/L	0.2	-	-	<0.2	-
Demeton-S-methyl	µg/L	0.5	0	<0.5	-	-
Diazinon	µg/L	0.2	0	<0.5	<0.2	0
Dichlorvos	µg/L	0.2	0	<0.5	<0.2	0
Dimethoate	µg/L	0.2	0	<0.5	<0.2	0
Disulfoton	µg/L	0.2	-	-	<0.2	-
Ethion	µg/L	0.2	0	<0.5	<0.2	0
Fenitrothion	µg/L	0.2	-	-	<0.2	-
Fenamiphos	µg/L	0.2	0	<0.5	<0.2	0
Fenthion	µg/L	0.2	0	<0.5	<0.2	0
Malathion	µg/L	0.2	0	<0.5	<0.2	0
Mevinphos (Phosdrin)	µg/L	0.2	-	-	<0.2	-
Methyl parathion	µg/L	0.2	0	<2.0	<0.2	0
Monocrotophos	µg/L	2	0	<2.0	-	-
Parathion	µg/L	0.2	0	<2.0	<0.2	0
Phorate	µg/L	0.2	-	-	<0.2	-
Prothiofos	µg/L	0.5	0	<0.5	-	-
Ronnel	µg/L	0.2	-	-	<0.2	-
Pesticides						
Pirimphos-ethyl	µg/L	0.5	0	<0.5	-	-
Perfluoroalkyl Sulfonic Acids						
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	0	<0.02	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0	0.01	0.01	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	0	0.02	0.02	0
Sum of PFHxS and PFOS	µg/L	0.01	0	0.03	0.03	0
Perfluoroalkyl Carboxylic Acid						
Perfluorobutanoic acid (PFBA)	µg/L	0.1	0	<0.1	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0	<0.02	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	0	<0.02	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	0	<0.02	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0	<0.01	<0.01	0
Fluorotelomer Sulfonic Acids						
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	0	<0.05	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	0	<0.05	<0.02	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	0	<0.05	-	-
PFAS Totals						
Sum of PFAS (WA DER List)	µg/L	0.01	0	0.03	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	-	-	0.02	-
Sum of PFAS	µg/L	0.01	-	-	0.03	-
Solvents						
Methyl Ethyl Ketone	µg/L	50	0	<50	-	-
2-hexanone (MBK)	µg/L	50	0	<50	-	-
4-Methyl-2-pentanone	µg/L	50	0	<50	-	-
Carbon disulfide	µg/L	5	0	<5	-	-
Cyclohexane	mg/L	0.001	-	-	<0.001	-
Vinyl acetate	µg/L	50	0	<50	-	-

***RPDs have only been considered where a concentration is greater than 1 times t**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs f**
*****Interlab Duplicates are matched on a per compound basis as methods vary be**

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

						NA	Amino Aliphatics			Physico-Chemical & Major Ions																		
						Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance
						µg/L	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%
EQL						2	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries												7-8.5																
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	-	<2	<2	<2	260	6.63	6.78	26,100	6.0	19,400	8,970	2,290	<1	<1	242	242	262	585	5,880	167	306	321	2.51
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	-	<2	<2	<2	226	5.29	5.58	17,400	3.9	13,000	6,240	996	<1	<1	28	28	75	471	3,430	8	197	192	1.39
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	-	<2	<2	<2	249	5.54	5.88	5,000	3.8	3,350	1,230	650	<1	<1	39	39	34	86	1,040	2	49.0	54.1	4.90
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	-	<2	<2	<2	117	6.10	6.36	10,200	4.1	6,860	3,480	461	<1	<1	139	139	87	210	2,060	8	110	111	0.40
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	-	<2	<2	<2	216	7.08	7.54	529	3.8	5,170	2,580	559	<1	<1	107	107	140	136	1,560	50	86.6	87.3	0.44
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	-	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<2	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	-	<2	<2	<2	227	6.77	7.35	514	3.1	15,000	7,470	988	<1	<1	107	107	368	396	4,020	109	233	229	1.04
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	-	<2	<2	<2	138	7.43	7.42	15,000	5.7	10,400	5,480	272	<1	<1	766	766	227	408	3,140	63	176	183	2.10
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	-	<2	<2	<2	200	6.18	6.46	525	4.6	311	35	80	<1	<1	138	138	11	17	75	12	5.41	5.52	0.98
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	-	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	-	<2	<2	<2	74.5	6.53	6.97	11,600	3.9	7,490	3,630	169	<1	<1	931	931	364	267	1,840	46	124	121	1.29
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	-	<2	<2	<2	131	7.03	7.11	1,470	5.0	850	201	12	<1	<1	606	606	116	52	182	16	18.0	18.4	1.00
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	-	<2	<2	<2	34.2	6.14	6.27	1,170	4.6	739	161	206	<1	<1	209	209	12	29	214	28	13.0	13.0	0.01
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	-	<2	<2	<2	261	6.55	6.83	26,600	2.9	20,800	9,250	1,810	<1	<1	448	448	399	876	5,360	27	308	326	2.88
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	-	<2	<2	<2	282	6.28	6.40	22,800	4.2	18,100	8,160	1,140	<1	<1	128	128	747	404	4,310	17	256	258	0.38
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	-	<2	<2	<2	38.7	6.52	6.52	5,970	6.7	3,840	1,730	344	<1	<1	174	174	61	135	1,220	9	59.4	67.4	6.31
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	-	<2	<2	<2	126	7.36	7.37	4,300	5.8	2,600	776	367	<1	<1	709	709	222	82	639	27	43.7	46.3	2.90
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	-	<2	<2	<2	86.0	5.26	5.29	21,700	4.8	27,800	6,240	5,330	<1	<1	48	48	292	627	4,640	114	288	271	3.05

Statistics

Number of Results	**1**	**18**	**20**	**18**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**
Number of Detects	**0**	**0**	**0**	**0**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**0**	**0**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**
Minimum Concentration	**<2**	**<2**	**<2**	**<2**	**34.2**	**5.26**	**5.29**	**514**	**2.9**	**311**	**35**	**12**	**<1**	**<1**	**28**	**28**	**11**	**17**	**75**	**2**	**5.41**	**5.52**	**0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**34.2**	**5.26**	**5.29**	**514**	**2.9**	**311**	**35**	**12**	**ND**	**ND**	**28**	**28**	**11**	**17**	**75**	**2**	**5.41**	**5.52**	**0.01**
Maximum Concentration	**<2**	**<2**	**<5**	**<2**	**282**	**7.43**	**7.54**	**26,600**	**6.7**	**27,800**	**9,250**	**5,330**	**<1**	**<1**	**931**	**931**	**747**	**876**	**5,880**	**167**	**308**	**326**	**6.31**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**282**	**7.43**	**7.54**	**26,600**	**6.7**	**27,800**	**9,250**	**5,330**	**ND**	**ND**	**931**	**931**	**747**	**876**	**5,880**	**167**	**308**	**326**	**6.31**
Average Concentration *		**1**	**1.2**	**1**	**167**	**6.4**	**6.6**	**10,680**	**4.6**	**9,732**	**4,102**	**980**	**0.5**	**0.5**	**301**	**301**	**214**	**299**	**2,476**	**44**	**142**	**144**	**2**
Median Concentration *	**1**	**1**	**1**	**1**	**169**	**6.525**	**6.65**	**8,085**	**4.4**	**7,175**	**3,555**	**510**	**0.5**	**0.5**	**156.5**	**156.5**	**181**	**238.5**	**1,950**	**27**	**117**	**116**	**1.34**
Standard Deviation *		**0**	**0.46**	**0**	**83**	**0.66**	**0.67**	**9,676**	**1.1**	**8,407**	**3,309**	**1,321**	**0**	**0**	**293**	**293**	**193**	**252**	**1,937**	**47**	**110**	**111**	**1.7**
95% UCL (Student's-t) *		**1**	**1.329**	**1**	**203.1**	**6.708**	**6.926**	**14,921**	**5.023**	**13,416**	**5,552**	**1,559**	**0.5**	**0.5**	**429.6**	**429.6**	**298.4**	**409.3**	**3,324**	**64.68**	**190.3**	**192.7**	**2.736**
% of Detects	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type		Amino Aromatics				Anilines						Nutrients											
						Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)
						mg/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	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L
EQL						1	2	5	5	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01	1	0.1	0.005
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	0.91										5.5	0.0044
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			2.4									
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																						0.3		0.005				
NEPM 2013 Table 1C GILs, Marine Waters																											0.7	0.0044
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	3,060	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.33	0.9	<0.01	<0.01	<0.01	0.9	0.16	<0.01	<0.10[#1]	<10[#1]	<1.0[#1]	<0.01
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	2,130	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.10	0.3	<0.01	<0.01	<0.01	0.3	0.08	<0.01	0.63	2	0.2	<0.01
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	439	<2	-	-	<4	<4	<4	<2	<2	<2	<2	<0.01	0.2	0.10	<0.01	0.10	0.3	0.04	<0.01	0.06	<1	0.1	<0.01
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	1,080	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.10	0.4	<0.01	<0.01	<0.01	0.4	0.04	<0.01	<0.01	<1	<0.1	<0.01
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	910	<2	-	-	<4	<4	<4	<2	<2	<2	<2	5.54	6.5	<0.01	<0.01	<0.01	6.5	0.29	<0.01	<0.01	7	<0.1	<0.01
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	-	<2	-	-	<4	<4	<4	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<0.01	7	<0.1	<0.01
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	<0.01	7	<0.1	<0.005
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	2,550	<2	-	-	<4	<4	<4	<2	<2	<2	<2	2.80	3.5	<0.01	<0.01	<0.01	3.5	0.20	<0.01	0.01	4	<0.1	<0.01
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	2,250	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.63	1.0	<0.01	<0.01	<0.01	1.0	0.11	<0.01	<0.01	2	<0.1	<0.01
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	97	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.03	0.2	0.10	<0.01	0.10	0.3	0.07	<0.01	-	<1	<0.1	<0.01
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	-	<2	-	-	<4	<4	<4	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1	<0.1	<0.01
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	<0.01	<1	<0.1	<0.005
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	2,010	<2	-	-	<4	<4	<4	<2	<2	<2	<2	2.67	2.7	<0.01	<0.01	<0.01	2.7	0.08	<0.01	-	<1	<0.1	<0.01
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	504	<2	-	-	<4	<4	<4	<2	<2	<2	<2	6.96	8.0	0.09	<0.01	0.09	8.1	0.46	<0.01	<0.01	<1	<0.1	<0.01
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	149	<2	-	-	<4	<4	<4	<2	<2	<2	<2	3.86	5.4	<0.01	<0.01	<0.01	5.4	0.15	<0.01	<0.01	13	<0.1	<0.01
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	4,600	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.75	0.9	<0.01	<0.01	<0.01	0.9	0.02	<0.01	<0.10[#1]	<10[#1]	<1.0[#1]	<0.01
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	3,530	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.29	0.6	0.36	0.03	0.39	1.0	0.07	<0.01	<0.01	<1	<0.1	<0.01
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	708	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.08	0.3	<0.01	<0.01	<0.01	0.3	0.06	<0.01	<0.01	<1	<0.1	<0.01
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	892	<2	-	-	<4	<4	<4	<2	<2	<2	<2	8.91	10.2	0.61	<0.01	0.61	10.8	0.08	<0.01	<0.01	5	<0.1	<0.01
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	3,310	<2	-	-	<4	<4	<4	<2	<2	<2	<2	1.46	4.9	<0.01	<0.01	<0.01	4.9	0.09	<0.01	0.68	10	<0.1	<0.01

Statistics

Statistic	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)
Number of Results	16	20	2	2	18	20	20	20	20	20	20	16	16	16	16	16	16	16	16	17	20	20	20
Number of Detects	16	0	0	0	0	0	0	0	0	0	0	15	16	5	1	5	16	16	0	4	9	2	0
Minimum Concentration	97	<2	<5	<5	<4	<4	<4	<2	<2	<2	<2	<0.01	0.2	<0.01	<0.01	<0.01	0.3	0.02	<0.01	0.01	<1	0.1	<0.005
Minimum Detect	97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0.2	0.09	0.03	0.09	0.3	0.02	ND	0.01	2	0.1	ND
Maximum Concentration	4,600	<5	<5	<5	<4	<5	<5	<5	<5	<5	<5	8.91	10.2	0.61	0.03	0.61	10.8	0.46	<0.01	0.68	13	<1	<0.01
Maximum Detect	4,600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.91	10.2	0.61	0.03	0.61	10.8	0.46	ND	0.68	13	0.2	ND
Average Concentration *	1,764	1.2	2.5	2.5	2	2	2	1.2	1.2	1.2	1.2	2.2	2.9	0.082	0.0066	0.084	3	0.13	0.005	0.09	3.6	0.11	0.0048
Median Concentration *	1,545	1	2.5	2.5	2	2	2	1	1	1	1	0.69	0.95	0.005	0.005	0.005	1	0.08	0.005	0.005	2	0.05	0.005
Standard Deviation *	1,368	0.46	0	0	0	0.15	0.15	0.46	0.46	0.46	0.46	2.8	3.2	0.17	0.0062	0.17	3.3	0.11	0	0.21	3.7	0.14	0.00077
95% UCL (Student's-t) *	2,363	1.329	2.5	2.5	2	2.11	2.11	1.329	1.329	1.329	1.329	3.382	4.28	0.156	0.0093	0.159	4.394	0.174	0.005	0.181	5.01	0.159	0.00505
% of Detects	100	0	0	0	0	0	0	0	0	0	0	94	100	31	6	31	100	100	0	24	45	10	0
% of Non-Detects	0	100	100	100	100	100	100	100	100	100	100	6	0	69	94	69	0	0	100	76	55	90	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)
						Metals												BTEX										
						mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	mg/L	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						0.005	0.005	1	1	0.01	1	0.001	0.05	1	0.05	0.05	1	1	1	1	2	1	2	0.1	1	1	10	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)						0.027	0.027		1.3		4.4		0.4	70			8	700	180	80				70	70			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries															0.03	0.03												
NEPM 2013 Table 1C GILs, Marine Waters						0.027	0.027		1.3		4.4		0.1	7			15	500						50	50			
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	-	<0.01	<10[#1]	<10[#1]	1.95	<10[#1]	0.552	<0.1	<10[#1]	-	-	<50[#1]	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	-	<0.01	3	73	2.07	2	0.386	<0.1	106	-	-	111	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	-	<0.01	<1	4	0.53	<1	0.638	<0.1	14	-	-	43	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	-	<0.01	<1	12	1.52	1	0.122	<0.1	7	-	-	15	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	-	<0.01	<1	<1	4.77	<1	0.360	<0.1	1	-	-	5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	-	<0.01	<1	<1	4.94	<1	0.365	<0.1	1	-	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<0.005	-	<1	<1	6.6	<1	0.36	<0.05	1	<0.05	-	2	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10	<10
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	-	<0.01	<1	<1	14.6	<1	1.47	<0.1	1	-	-	5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	-	<0.01	<1	<1	0.22	<1	0.481	<0.1	<1	-	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	-	<0.01	<1	39	-	<1	-	<0.1	1	-	-	7	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	-	<0.01	<1	42	-	<1	-	<0.1	1	-	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	<0.005	-	<1	40	<0.01	<1	0.086	<0.05	1	<0.05	-	3	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10	<10
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	-	<0.01	<1	<1	-	<1	-	<0.1	<1	-	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	-	<0.01	<1	<1	17.8	<1	0.716	<0.1	<1	-	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	-	<0.01	<1	<1	49.5	<1	1.01	<0.1	6	-	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	-	<0.01	<10[#1]	153	10.6	<10[#1]	1.18	<0.1	<10[#1]	-	-	<50[#1]	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	-	<0.01	<1	66	0.76	<1	0.170	<0.1	7	-	-	9	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	-	<0.01	<1	2	7.14	<1	0.070	<0.1	4	-	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	-	<0.01	<1	1	2.98	<1	0.258	<0.1	13	-	<1	20	2	<2	<2	<2	<2	<2	<1.0	<5	2	490	490
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	-	<0.01	3	1	815	1	1.02	<0.1	30	-	<1	166	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20

Statistics

Statistic	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)
Number of Results	**2**	**18**	**20**	**20**	**17**	**20**	**17**	**20**	**20**	**2**	**6**	**20**	**20**	**20**	**20**	**20**	**20**	**18**	**20**	**20**	**18**	**20**	**20**
Number of Detects	**0**	**0**	**2**	**11**	**16**	**3**	**17**	**0**	**15**	**0**	**0**	**11**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**
Minimum Concentration	**<0.005**	**<0.01**	**<1**	**1**	**<0.01**	**1**	**0.07**	**<0.05**	**1**	**<0.05**	**<1**	**2**	**<1**	**<1**	**<1**	**<2**	**<1**	**<2**	**<0.1**	**<1**	**<1**	**<10**	**<10**
Minimum Detect	**ND**	**ND**	**3**	**1**	**0.22**	**1**	**0.07**	**ND**	**1**	**ND**	**ND**	**2**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2**	**490**	**490**
Maximum Concentration	**<0.005**	**<0.01**	**<10**	**153**	**815**	**<10**	**1.47**	**<0.1**	**106**	**<0.05**	**<1**	**166**	**2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**2**	**490**	**490**
Maximum Detect	**ND**	**ND**	**3**	**153**	**815**	**2**	**1.47**	**ND**	**106**	**ND**	**ND**	**166**	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2**	**490**	**490**
Average Concentration *	**0.0025**	**0.005**	**1.2**	**22**	**55**	**1.1**	**0.54**	**0.048**	**10**	**0.025**	**0.5**	**23**	**0.57**	**0.95**	**0.95**	**1**	**0.95**	**1**	**0.45**	**2.3**	**0.58**	**34**	**34**
Median Concentration *	**0.0025**	**0.005**	**0.5**	**1.5**	**4.77**	**0.5**	**0.386**	**0.05**	**2.5**	**0.025**	**0.5**	**5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**
Standard Deviation *	**0**	**0**	**1.5**	**39**	**196**	**1.4**	**0.41**	**0.0077**	**24**	**0**	**0**	**42**	**0.34**	**0.15**	**0.15**	**0**	**0.15**	**0**	**0.14**	**0.62**	**0.35**	**107**	**107**
95% UCL (Student's-t) *	**0.0025**	**0.005**	**1.783**	**37.05**	**138.4**	**1.612**	**0.718**	**0.0505**	**19.41**	**0.025**	**0.5**	**38.92**	**0.705**	**1.01**	**1.01**	**1**	**1.01**	**1**	**0.509**	**2.538**	**0.728**	**75.05**	**75.05**
% of Detects	**0**	**0**	**10**	**55**	**94**	**15**	**100**	**0**	**75**	**0**	**0**	**55**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**5**	**5**
% of Non-Detects	**100**	**100**	**90**	**45**	**6**	**85**	**0**	**100**	**25**	**100**	**100**	**45**	**95**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**94**	**95**	**95**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						TRH					MAH									Halogenated Hydrocarbons								
						C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						50	50	100	100	50	1	1	1	1	1	1	1	1	1	1	10	10	5	10	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													30													270	400	1,900
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												1,900
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434907004	CZ5/Shallow	CZ5_MW09		23 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<100	<100	320	<100	320	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5

Statistics

Statistic	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane
Number of Results	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	20	20	20
Number of Detects	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<5	<10	<1	<1	<1	<1
Minimum Detect	ND	ND	320	ND	320	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<100	<100	320	<100	320	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5
Maximum Detect	ND	ND	320	ND	320	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	48	48	64	50	61	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	23	23	2.5	23	2.3	2.3	2.3	2.3
Median Concentration *	50	50	50	50	50	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5
Standard Deviation *	7.7	7.7	60	0	61	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	6.2	6.2	0	6.2	0.62	0.62	0.62	0.62
95% UCL (Student's-t) *	50.48	50.48	86.84	50	84.76	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	25.38	25.38	2.5	25.38	2.538	2.538	2.538	2.538
% of Detects	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	95	100	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

						Chlorinated Hydrocarbons																						
						1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	1	1	1	1	1	1	1	1	1	1	10	1	10	1	1	1	1	5	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							700				1,900	900	1,100					240			770							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434907004	**CZ5a/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<5	<2
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<5	<2
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2

Statistics

Statistic	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane
Number of Results	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**2**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**	**<5**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<1**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<2**	**<10**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**0.5**	**2.3**	**2.3**	**2.3**	**2.3**	**23**	**2.3**	**23**	**2.3**	**2.3**	**2.3**	**0.95**	**4.8**	**1**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**0.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**1**	**5**	**1**
Standard Deviation *	**0.62**	**0.62**	**0.62**	**0.62**	**0.62**	**0.62**	**0.62**	**0.62**	**0.62**	**0**	**0.62**	**0.62**	**0.62**	**0.62**	**6.2**	**0.62**	**6.2**	**0.62**	**0.62**	**0.62**	**0.15**	**0.77**	**0**
95% UCL (Student's-t) *	**2.538**	**2.538**	**2.538**	**2.538**	**2.538**	**2.538**	**2.538**	**2.538**	**2.538**	**0.5**	**2.538**	**2.538**	**2.538**	**2.538**	**25.38**	**2.538**	**25.38**	**2.538**	**2.538**	**2.538**	**1.01**	**5.048**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

											Halogenated Benzenes											VOCs					
						Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine
						μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	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	1	1	1	10	4	1	1	1	1	1	1	1	1	1	0.2	2	5	5	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)						330	70			100			80							55	0.1	2			80			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters														20														
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434907004	CZ5/Shallow	CZ5_MW09		23 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<1	<1	<1	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	-	-	<2	<5	<2	-
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	<1	<1	<1	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	-	-	<2	<5	<2	-
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	4	<2	20	31	<5	<5	<5	479	<0.5	<2	<5	<5	<5	<2	<2	<2
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2

Statistics

Number of Results	**20**	**20**	**20**	**20**	**20**	**2**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**18**	**18**	**20**	**20**	**20**	**18**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<10**	**<4**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.2**	**<2**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**4**	**ND**	**20**	**31**	**ND**	**ND**	**ND**	**479**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<50**	**<4**	**<5**	**4**	**<2**	**20**	**31**	**<5**	**<5**	**<5**	**479**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<5**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**4**	**ND**	**20**	**31**	**ND**	**ND**	**ND**	**479**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.3**	**2.3**	**2.3**	**2.3**	**23**	**2**	**2.3**	**1.1**	**0.95**	**1.9**	**2.4**	**2.3**	**2.3**	**2.3**	**26**	**0.24**	**1**	**2.5**	**2.5**	**2.4**	**1.2**	**1**	**1**
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2**	**2.5**	**1**	**1**	**1**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**
Standard Deviation *	**0.62**	**0.62**	**0.62**	**0.62**	**6.2**	**0**	**0.62**	**0.7**	**0.15**	**4.3**	**6.7**	**0.62**	**0.62**	**0.62**	**107**	**0.046**	**0**	**0**	**0**	**0.46**	**0.46**	**0**	**0**
95% UCL (Student's-t) *	**2.538**	**2.538**	**2.538**	**2.538**	**25.38**	**2**	**2.538**	**1.371**	**1.01**	**3.548**	**5.049**	**2.538**	**2.538**	**2.538**	**67.34**	**0.253**	**1**	**2.5**	**2.5**	**2.529**	**1.329**	**1**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**5**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**95**	**100**	**95**	**95**	**100**	**100**	**100**	**95**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

						SVOCs																						
						4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						2	2	2	2	2	5	2	2	5	2	2	10	2	2	2	4	2	0.0002	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	-	<5	<0.0002	<2	<2	<2	<2	<2
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	-	<5	<0.0002	<2	<2	<2	<2	<2
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2

Statistics

Number of Results	20	20	20	18	20	2	20	20	2	20	20	2	20	20	20	18	20	14	2	20	20	20	20
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<10	<2	<2	<2	<4	<2	<0.0002	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<2	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	<4	<5	<0.004	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1.2	1.2	1.2	1	1.2	2.5	1.2	1.2	2.5	1.2	1	5	1.4	1.2	1.2	2	1.2	0.0017	1	1	1	1	1
Median Concentration *	1	1	1	1	1	2.5	1	1	2.5	1	1	5	1	1	1	2	1	0.002	1	1	1	1	1
Standard Deviation *	0.46	0.46	0.46	0	0.46	0	0.46	0.46	0	0.46	0	0	1.2	0.46	0.46	0	0.46	0.00069	0	0	0	0	0
95% UCL (Student's-t) *	1.329	1.329	1.329	1	1.329	2.5	1.329	1.329	2.5	1.329	1	5	1.876	1.329	1.329	2	1.329	0.00206	1	1	1	1	1
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

						PAH																			TPH			
						Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36
						µg/L	µg/L	µg/L	µg/L	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	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL						0.1	0.1	0.1	0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.4		0.2						1.4			2									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434907004	**CZ5/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	450	<50	280	60
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50

Statistics

	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36
Number of Results	**20**	**20**	**20**	**20**	**20**	**18**	**20**	**18**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**2**	**18**	**18**	**2**	**20**	**20**	**20**	**20**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**
Minimum Concentration	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**	**<50**	**<100**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**450**	**ND**	**280**	**60**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**450**	**<50**	**280**	**<100**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**450**	**ND**	**280**	**60**
Average Concentration *	**0.45**	**0.45**	**0.45**	**0.45**	**0.23**	**0.5**	**0.45**	**0.5**	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**32**	**25**	**62**	**29**
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10**	**25**	**50**	**25**
Standard Deviation *	**0.14**	**0.14**	**0.14**	**0.14**	**0.062**	**0**	**0.14**	**0**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0**	**0**	**0**	**0**	**99**	**0**	**51**	**11**
95% UCL (Student's-t) *	**0.509**	**0.509**	**0.509**	**0.509**	**0.254**	**0.5**	**0.509**	**0.5**	**0.509**	**0.509**	**0.509**	**0.509**	**0.509**	**0.509**	**0.509**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**69.59**	**25**	**81.39**	**33.33**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**5**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**95**	**100**	**95**	**95**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

							Phenols																		PC			
						C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242
						µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						50	2	2	0.02	2	0.0005	2	2	2	2	2	4	2	20	20	2	1	4	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																							22	400				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																							11	400				
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<50	<2	<2	<0.02	<2	<0.0005	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	<1	<10	<2	<2	<2	<2	<2
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	<50	<2	<2	<0.02	<2	-	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	-	<10	<2	<2	<2	<2	<2
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	340	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10	<4	<2	-	-	-	-

Statistics

Number of Results	**20**	**2**	**20**	**2**	**20**	**10**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**2**	**2**	**20**	**10**	**20**	**20**	**2**	**2**	**2**	**2**
Number of Detects	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<2**	**<2**	**<0.02**	**<2**	**<0.0005**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<20**	**<20**	**<2**	**<1**	**<4**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**340**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**340**	**<2**	**<2**	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<20**	**<20**	**<5**	**<10**	**<10**	**<2**	**<2**	**<2**	**<2**	**<2**
Maximum Detect	**340**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**41**	**1**	**1**	**0.01**	**1**	**0.0045**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**10**	**10**	**1.2**	**4.6**	**2.3**	**1**	**1**	**1**	**1**	**1**
Median Concentration *	**25**	**1**	**1**	**0.01**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**10**	**10**	**1**	**5**	**2**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *	**70**	**0**	**0**	**0**	**0**	**0.0015**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.46**	**1.4**	**0.92**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**67.98**	**1**	**1**	**0.01**	**1**	**0.0054**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**10**	**10**	**1.329**	**5.375**	**2.657**	**1**	**1**	**1**	**1**	**1**
% of Detects	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**95**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

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						Bs				Explosives				
						Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene
						µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L
EQL						2	2	2	1	0.002	0.005	4	4	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Interim Marine 95%														
PFAS NEMP 2020 Interim Marine 99%														
ANZECC 2000 SE Aust - Estuaries														
NEPM 2013 Table 1C GILs, Marine Waters														
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**									
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434907004	**CZ5a/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<2	<2	<2	-	-	<0.005	-	<5	<5
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<2	<2	<2	-	-	<0.005	-	<5	<5
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	-	-	-	<1	<0.002	-	<4	<4	<2

	Organochlorine Pesticides													
	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
	µg/L	µg/L	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	0.2	0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Interim Marine 95%														
PFAS NEMP 2020 Interim Marine 99%														
ANZECC 2000 SE Aust - Estuaries														
NEPM 2013 Table 1C GILs, Marine Waters														
Sample Code														
ES2434907003	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434907008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434907009	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434907004	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434906004	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434906007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
364936-1	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
ES2434906005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434766011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434174003	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434174001	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
364372-1	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
ES2434174004	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434766007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434766006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434907006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434907005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434766012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434766010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5
ES2434766009	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5

Statistics

Statistics	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene
Number of Results	**2**	**2**	**2**	**18**	**18**	**2**	**18**	**20**	**20**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<1**	**<0.002**	**<0.005**	**<4**	**<4**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<1**	**<0.002**	**<0.005**	**<4**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1**	**1**	**0.5**	**0.001**	**0.0025**	**2**	**2**	**1.2**
Median Concentration *	**1**	**1**	**1**	**0.5**	**0.001**	**0.0025**	**2**	**2**	**1**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.15**	**0.46**
95% UCL (Student's-t) *	**1**	**1**	**1**	**0.5**	**0.001**	**0.0025**	**2**	**2.11**	**1.329**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Statistics	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
Number of Results	**20**	**20**	**18**	**20**	**20**	**18**	**20**	**20**	**20**	**20**	**20**	**18**	**20**	**20**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.24**	**0.24**	**0.25**	**0.24**	**0.24**	**0.25**	**0.24**	**0.24**	**0.24**	**0.24**	**0.91**	**0.25**	**0.24**	**0.24**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0.046**	**0.046**	**0**	**0.046**	**0.046**	**0**	**0.046**	**0.046**	**0.046**	**0.046**	**0.28**	**0**	**0.046**	**0.046**
95% UCL (Student's-t) *	**0.253**	**0.253**	**0.25**	**0.253**	**0.253**	**0.25**	**0.253**	**0.253**	**0.253**	**0.253**	**1.017**	**0.25**	**0.253**	**0.253**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

																												Organophosphorous P
						Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	5	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.008											0.009									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters								0.004											0.009									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434907004	**CZ5a/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5	<0.2
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5	<0.2
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
Statistics																												
Number of Results						**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**18**	**18**	**20**	**20**	**2**	**18**	**20**	**20**	**20**	**2**	**2**	**20**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<5**	**<0.2**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<5**	**<0.5**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**0.24**	**0.24**	**0.24**	**0.24**	**0.32**	**0.24**	**0.24**	**0.24**	**0.91**	**0.24**	**0.24**	**0.25**	**0.25**	**0.24**	**0.24**	**0.1**	**0.25**	**0.24**	**0.24**	**0.24**	**0.1**	**2.5**	**0.24**
Median Concentration *						**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**2.5**	**0.25**
Standard Deviation *						**0.046**	**0.046**	**0.046**	**0.046**	**0.23**	**0.046**	**0.046**	**0.046**	**0.28**	**0.046**	**0.046**	**0**	**0**	**0.046**	**0.046**	**0**	**0**	**0.046**	**0.046**	**0.046**	**0**	**0**	**0.046**
95% UCL (Student's-t) *						**0.253**	**0.253**	**0.253**	**0.253**	**0.414**	**0.253**	**0.253**	**0.253**	**1.017**	**0.253**	**0.253**	**0.25**	**0.25**	**0.253**	**0.253**	**0.1**	**0.25**	**0.253**	**0.253**	**0.253**	**0.1**	**2.5**	**0.253**
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

						esticides													Pesticides									
						Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	Metribuzin	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	mg/L	mg/L
EQL						0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5	0.2	5	2	2	0.2	0.5	2	0.0005	0.0005	0.0005	0.0005	0.0005
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434907004	**CZ5a/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<5	-	<5	<0.2	-	<2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<5	-	<5	<0.2	-	-	-	-	-	-	-
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-	-	-
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01

Statistics

Number of Results	**2**	**20**	**20**	**20**	**2**	**2**	**20**	**18**	**20**	**2**	**18**	**2**	**2**	**18**	**20**	**2**	**18**	**1**	**10**	**10**	**10**	**10**	**10**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<2**	**<0.2**	**<0.5**	**<2**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<2**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<5**	**<0.2**	**<0.5**	**<2**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.1**	**0.24**	**0.24**	**0.24**	**0.1**	**0.1**	**0.91**	**1**	**0.91**	**0.1**	**0.25**	**0.1**	**2.5**	**1**	**1.2**	**0.1**	**0.25**		**0.0045**	**0.0045**	**0.0045**	**0.0045**	**0.0045**
Median Concentration *	**0.1**	**0.25**	**0.25**	**0.25**	**0.1**	**0.1**	**1**	**1**	**1**	**0.1**	**0.25**	**0.1**	**2.5**	**1**	**1**	**0.1**	**0.25**	**1**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Standard Deviation *	**0**	**0.046**	**0.046**	**0.046**	**0**	**0**	**0.28**	**0**	**0.28**	**0**	**0**	**0**	**0**	**0**	**0.46**	**0**	**0**		**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**
95% UCL (Student's-t) *	**0.1**	**0.253**	**0.253**	**0.253**	**0.1**	**0.1**	**1.017**	**1**	**1.017**	**0.1**	**0.25**	**0.1**	**2.5**	**1**	**1.329**	**0.1**	**0.25**		**0.0054**	**0.0054**	**0.0054**	**0.0054**	**0.0054**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						Herbicides																						
						4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	2-Chlorophenoxyacetic acid	4-Chlorophenoxy acetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Clopyralid	Cyanazine	Dicamba	Dinoseb	Fluroxypyr	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine	Simazine	Terbutryn
						µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L	mg/L
EQL						0.5	0.0005	0.0005	0.002	0.002	0.002	1	0.5	1	0.5	2	0.5	1	1	2	0.5	0.5	0.5	0.002	2	0.002	0.002	0.002
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%																												
PFAS NEMP 2020 Interim Marine 99%																												
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434907004	**CZ5a/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<0.5	<0.0005	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<0.5	<2	<0.5	<1	<1	<2	<0.5	<0.5	<0.5	<0.002	-	<0.002	<0.002	<0.002
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	-
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	<10	-	<0.01	-	-	-	-	-	-	<10	-	<10	-	<10	-	<10	<10	<10	-	<2	-	-	-
Statistics																												
Number of Results						**10**	**1**	**10**	**1**	**1**	**1**	**1**	**1**	**1**	**10**	**1**	**10**	**2**	**10**	**1**	**10**	**10**	**10**	**1**	**18**	**1**	**1**	**1**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<0.5**	**<0.0005**	**<0.0005**	**<0.002**	**<0.002**	**<0.002**	**<1**	**<0.5**	**<1**	**<0.5**	**<2**	**<0.5**	**<1**	**<1**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.002**	**<2**	**<0.002**	**<0.002**	**<0.002**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<10**	**<0.0005**	**<0.01**	**<0.002**	**<0.002**	**<0.002**	**<1**	**<0.5**	**<1**	**<10**	**<2**	**<10**	**<20**	**<10**	**<2**	**<10**	**<10**	**<10**	**<0.002**	**<2**	**<0.002**	**<0.002**	**<0.002**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**4.5**		**0.0045**							**4.5**		**4.5**	**5.2**	**4.6**		**4.5**	**4.5**	**4.5**		**1**			
Median Concentration *						**5**	**0.00025**	**0.005**	**0.001**	**0.001**	**0.001**	**0.5**	**0.25**	**0.5**	**5**	**1**	**5**	**5.25**	**5**	**1**	**5**	**5**	**5**	**0.001**	**1**	**0.001**	**0.001**	**0.001**
Standard Deviation *						**1.5**		**0.0015**							**1.5**		**1.5**	**6.7**	**1.4**		**1.5**	**1.5**	**1.5**		**0**			
95% UCL (Student's-t) *						**5.396**		**0.0054**							**5.396**		**5.396**	**35.24**	**5.375**		**5.396**	**5.396**	**5.396**		**1**			
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T14. Groundwater Analytical Results – Marine Water Quality Criteria (October 2024 GME)

							Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals			Nitroaromatics			Organic	Ot	
						Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone
						mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	µg/L
EQL						0.0005	0.01	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05	0.01	0.01	0.01	2	2	2	0.002	0.0005	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Interim Marine 95%									0.13						220													
PFAS NEMP 2020 Interim Marine 99%									0.00023						19													
ANZECC 2000 SE Aust - Estuaries																												
NEPM 2013 Table 1C GILs, Marine Waters																												
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																							
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	-	0.41	1.11	0.46	1.57	<0.1	0.08	0.35	0.04	0.07	<0.05	<0.05	<0.05	<0.05	2.52	-	-	<2	<2	<2	-	-	<2
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2	-	-	<2
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	-	0.03	0.03	<0.01	0.03	<0.1	<0.02	0.03	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.09	-	-	<2	<2	<2	-	-	<2
ES2434907004	**CZ5/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	-	0.11	0.11	<0.01	0.11	<0.1	<0.02	0.05	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.27	-	-	<2	<2	<2	-	-	<2
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	-	<0.02	<0.01	0.01	0.01	<0.1	0.08	0.04	<0.02	0.01	<0.05	<0.05	<0.05	<0.05	0.14	-	-	<2	<2	<2	-	-	<2
ES2434906007	**CZ5a/Shallow**	**QC05**	**CZ5a_MW103**	**25 Oct 2024**	**Water**	-	<0.02	<0.01	0.02	0.02	<0.1	0.09	0.04	<0.02	0.01	<0.05	<0.05	<0.05	<0.05	0.16	-	-	<2	<2	<2	-	-	<2
364936-1	**CZ5a/Shallow**	**QC06**	**CZ5a_MW103**	**24 Oct 2024**	**Water**	<0.0005	<0.01	<0.01	0.01	0.01	-	-	-	-	0.01	-	<0.01	<0.02	-	-	0.02	0.02	-	-	<5	<0.002	<0.0005	<5
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	-	<0.02	<0.01	0.01	0.01	<0.1	0.05	0.03	<0.02	0.05	<0.05	<0.05	<0.05	<0.05	0.14	-	-	<2	<2	<2	-	-	<2
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2	-	-	<2
ES2434174003	**CZ3/Shallow**	**SMW_BH057_S**		**17 Oct 2024**	**Water**	<0.01	<0.02	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.03	-	-	<2	<2	<2	-	-	<2
ES2434174001	**CZ3/Shallow**	**QC01**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	<0.01	<0.02	0.01	0.03	0.04	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.04	-	-	<2	<2	<2	-	-	<2
364372-1	**CZ3/Shallow**	**QC02**	**SMW_BH057_s**	**17 Oct 2024**	**Water**	-	-	0.01	0.03	0.04	-	-	-	-	<0.01	-	<0.01	<0.02	-	-	0.03	0.04	-	-	<5	-	-	<5
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2	-	-	<2
ES2434766007	**CZ3/Shallow**	**SMW_ENV009_W**		**21 Oct 2024**	**Water**	<0.01	0.11	0.01	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.12	-	-	<2	<2	<2	-	-	<2
ES2434766006	**CZ3/Shallow**	**SMW_ENV010_W**		**21 Oct 2024**	**Water**	<0.01	0.04	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.04	-	-	<2	<2	<2	-	-	<2
ES2434907006	**CZ3/Shallow**	**SMW_ENV039_W**		**23 Oct 2024**	**Water**	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2	-	-	<2
ES2434907005	**Rosehill/Deep**	**SMW_ENV145_W**		**23 Oct 2024**	**Water**	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2	-	-	<2
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	<0.01	<0.02	0.01	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.01	-	-	<2	<2	<2	-	-	<2
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	<0.01	0.10	0.09	<0.01	0.09	<0.1	0.02	0.06	0.02	0.03	<0.05	<0.05	<0.05	<0.05	0.32	-	-	<2	<2	<2	-	-	<2
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	<2	<2	<2	-	-	<2

Statistics

	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone
Number of Results	**10**	**19**	**20**	**20**	**20**	**18**	**18**	**18**	**18**	**20**	**18**	**20**	**20**	**18**	**18**	**2**	**2**	**18**	**18**	**20**	**1**	**1**	**20**
Number of Detects	**0**	**6**	**9**	**8**	**13**	**0**	**5**	**7**	**2**	**6**	**0**	**0**	**0**	**0**	**12**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.0005**	**<0.01**	**0.01**	**0.01**	**0.01**	**<0.1**	**0.02**	**<0.02**	**0.02**	**0.01**	**<0.05**	**<0.01**	**<0.02**	**<0.05**	**0.01**	**0.02**	**0.02**	**<2**	**<2**	**<2**	**<0.002**	**<0.0005**	**<2**
Minimum Detect	**ND**	**0.03**	**0.01**	**0.01**	**0.01**	**ND**	**0.02**	**0.03**	**0.02**	**0.01**	**ND**	**ND**	**ND**	**ND**	**0.01**	**0.02**	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.01**	**0.41**	**1.11**	**0.46**	**1.57**	**<0.1**	**0.09**	**0.35**	**0.04**	**0.07**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**2.52**	**0.03**	**0.04**	**<2**	**<2**	**<5**	**<0.002**	**<0.0005**	**<5**
Maximum Detect	**ND**	**0.41**	**1.11**	**0.46**	**1.57**	**ND**	**0.09**	**0.35**	**0.04**	**0.07**	**ND**	**ND**	**ND**	**ND**	**2.52**	**0.03**	**0.04**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.0045**	**0.049**	**0.072**	**0.033**	**0.1**	**0.05**	**0.025**	**0.039**	**0.012**	**0.013**	**0.025**	**0.023**	**0.024**	**0.025**	**0.22**	**0.025**	**0.03**	**1**	**1**	**1.2**			**1.2**
Median Concentration *	**0.005**	**0.01**	**0.005**	**0.005**	**0.01**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.04**	**0.025**	**0.03**	**1**	**1**	**1**	**0.001**	**0.00025**	**1**
Standard Deviation *	**0.0015**	**0.095**	**0.25**	**0.1**	**0.35**	**0**	**0.029**	**0.079**	**0.0073**	**0.018**	**0**	**0.0062**	**0.0046**	**0**	**0.58**	**0.0071**	**0.014**	**0**	**0**	**0.46**			**0.46**
95% UCL (Student's-t) *	**0.0054**	**0.0863**	**0.167**	**0.0715**	**0.235**	**0.05**	**0.0367**	**0.0719**	**0.0152**	**0.0193**	**0.025**	**0.0254**	**0.0253**	**0.025**	**0.456**	**0.0566**	**0.0931**	**1**	**1**	**1.329**			**1.329**
% of Detects	**0**	**32**	**45**	**40**	**65**	**0**	**28**	**39**	**11**	**30**	**0**	**0**	**0**	**0**	**67**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**68**	**55**	**60**	**35**	**100**	**72**	**61**	**89**	**70**	**100**	**100**	**100**	**100**	**33**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						ner		Phthalates							Solvents						
						Actril (ioxynil)	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
						mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL						0.001	0.0002	10	2	50	2	2	2	2	50	50	50	5	0.001	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters																					
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434906007	CZ5a/Shallow	QC05	CZ5a_MW103	25 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
364936-1	CZ5a/Shallow	QC06	CZ5a_MW103	24 Oct 2024	Water	<0.001	<0.0002	-	<10	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434174001	CZ3/Shallow	QC01	SMW_BH057_s	17 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
364372-1	CZ3/Shallow	QC02	SMW_BH057_s	17 Oct 2024	Water	-	<0.0002	-	<10	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	-	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50

Statistics

Statistics	Actril (ioxynil)	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
Number of Results	1	2	18	20	2	20	20	20	20	18	18	18	18	2	20	18
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.001	<0.0002	<10	<2	<50	<2	<2	<2	<2	<50	<50	<50	<5	<0.001	<2	<50
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.001	<0.0002	<10	<10	<50	<10	<10	<50	<50	<50	<50	<50	<5	<0.001	<5	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		0.0001	5	1.4	25	1.4	1.4	3.4	3.4	25	25	25	2.5	0.0005	1.2	25
Median Concentration *	0.0005	0.0001	5	1	25	1	1	1	1	25	25	25	2.5	0.0005	1	25
Standard Deviation *		0	0	1.2	0	1.2	1.2	7.4	7.4	0	0	0	0	0	0.46	0
95% UCL (Student's-t) *		0.0001	5	1.876	25	1.876	1.876	6.256	6.256	25	25	25	2.5	0.0005	1.329	25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

						Amino Aliphatics			Physico-Chemical & Major Ions																
						N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
						µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL						2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%																									
PFAS NEMP 2020 Freshwater 99%																									
ANZECC 2000 SE Aust - Lowland River											6.5-8														
NEPM 2013 Table 1C GILs, Fresh Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<2	<2	<2	235	6.95	6.83	465	9.5	311	46	72	<1	<1	98	98	4	5	108	1	5.04
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<2	<2	<2	259	5.91	5.98	755	6.9	504	138	147	<1	<1	41	41	10	11	152	2	7.77
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<2	<2	<2	263	5.99	6.79	429	3.9	293	41	50	<1	<1	71	71	10	10	67	4	4.14
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2	<2	<2	105	6.98	7.65	12,200	7.6	7,230	3,790	235	<1	<1	1,070	1,070	159	354	1,880	45	133
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2	<2	<2	71.0	6.82	7.50	18,300	4.7	12,100	5,980	383	<1	<1	1,110	1,110	218	489	3,350	62	199
Statistics																									
Number of Results						**6**	**7**	**6**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects						**0**	**0**	**0**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**0**	**0**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Minimum Concentration						**<2**	**<2**	**<2**	**71**	**5.91**	**5.98**	**429**	**3.9**	**293**	**41**	**50**	**<1**	**<1**	**41**	**41**	**4**	**5**	**67**	**1**	**4.14**
Minimum Detect						**ND**	**ND**	**ND**	**71**	**5.91**	**5.98**	**429**	**3.9**	**293**	**41**	**50**	**ND**	**ND**	**41**	**41**	**4**	**5**	**67**	**1**	**4.14**
Maximum Concentration						**<2**	**<5**	**<2**	**263**	**6.98**	**7.65**	**18,300**	**9.5**	**12,100**	**5,980**	**383**	**<1**	**<1**	**1,110**	**1,110**	**218**	**489**	**3,350**	**62**	**199**
Maximum Detect						**ND**	**ND**	**ND**	**263**	**6.98**	**7.65**	**18,300**	**9.5**	**12,100**	**5,980**	**383**	**ND**	**ND**	**1,110**	**1,110**	**218**	**489**	**3,350**	**62**	**199**
Average Concentration *						**1**	**1.2**	**1**	**187**	**6.5**	**7**	**6,430**	**6.5**	**4,088**	**1,999**	**177**	**0.5**	**0.5**	**478**	**478**	**80**	**174**	**1,111**	**23**	**70**
Median Concentration *						**1**	**1**	**1**	**235**	**6.82**	**6.83**	**755**	**6.9**	**504**	**138**	**147**	**0.5**	**0.5**	**98**	**98**	**10**	**11**	**152**	**4**	**7.77**
Standard Deviation *						**0**	**0.57**	**0**	**91**	**0.53**	**0.67**	**8,336**	**2.3**	**5,375**	**2,746**	**136**	**0**	**0**	**559**	**559**	**101**	**231**	**1,468**	**29**	**91**
95% UCL (Student's-t) *						**1**	**1.631**	**1**	**273.8**	**7.039**	**7.585**	**14,378**	**8.671**	**9,212**	**4,617**	**306.9**	**0.5**	**0.5**	**1,011**	**1,011**	**176.6**	**394.1**	**2,511**	**50.15**	**156.4**
% of Detects						**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects						**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

				Amino Aromatics				Anilines						Nutrients						
	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)
	meq/L	%	mg/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	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.01	1	2	5	5	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)													250	0.9						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																2.4				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																			0.5	
NEPM 2013 Table 1C GILs, Fresh Waters													*8*							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	5.33	2.82	30	<2	-	-	<4	<4	<4	<2	<2	<2	<2	<0.01	0.4	4.12	<0.01	4.12	4.5	0.06
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	-	-	-	<2	-	-	<4	<4	<4	<2	<2	<2	<2	-	-	-	-	-	-	-
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	-	-	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	8.07	1.86	70	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.03	0.7	0.29	<0.01	0.29	1.0	0.50
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	4.34	2.17	66	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.01	0.5	7.09	0.14	7.23	7.7	0.05
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	120	5.21	1,850	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.81	1.1	<0.01	<0.01	<0.01	1.1	0.05
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	198	0.10	2,560	<2	-	-	<4	<4	<4	<2	<2	<2	<2	2.84	12.3	0.44	0.04	0.48	12.8	2.84

Statistics

Statistic	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)
Number of Results	**5**	**5**	**5**	**7**	**1**	**1**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**5**	**5**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**5**	**4**	**2**	**4**	**5**	**5**
Minimum Concentration	**4.34**	**0.1**	**30**	**<2**	**<5**	**<5**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.01**	**0.4**	**<0.01**	**<0.01**	**<0.01**	**1**	**0.05**
Minimum Detect	**4.34**	**0.1**	**30**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.01**	**0.4**	**0.29**	**0.04**	**0.29**	**1**	**0.05**
Maximum Concentration	**198**	**5.21**	**2,560**	**<5**	**<5**	**<5**	**<4**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**2.84**	**12.3**	**7.09**	**0.14**	**7.23**	**12.8**	**2.84**
Maximum Detect	**198**	**5.21**	**2,560**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.84**	**12.3**	**7.09**	**0.14**	**7.23**	**12.8**	**2.84**
Average Concentration *	**67**	**2.4**	**915**	**1.2**			**2**	**2.1**	**2.1**	**1.2**	**1.2**	**1.2**	**1.2**	**0.74**	**3**	**2.4**	**0.039**	**2.4**	**5.4**	**0.7**
Median Concentration *	**8.07**	**2.17**	**70**	**1**	**2.5**	**2.5**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**0.03**	**0.7**	**0.44**	**0.005**	**0.48**	**4.5**	**0.06**
Standard Deviation *	**88**	**1.9**	**1,204**	**0.57**			**0**	**0.19**	**0.19**	**0.57**	**0.57**	**0.57**	**0.57**	**1.2**	**5.2**	**3.1**	**0.058**	**3.2**	**5**	**1.2**
95% UCL (Student's-t) *	**151.3**	**4.197**	**2,063**	**1.631**			**2**	**2.21**	**2.21**	**1.631**	**1.631**	**1.631**	**1.631**	**1.906**	**7.963**	**5.365**	**0.0947**	**5.446**	**10.16**	**1.855**
% of Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**80**	**100**	**80**	**40**	**80**	**100**	**100**
% of Non-Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**20**	**0**	**20**	**60**	**20**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

		Metals																		
	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene
	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1	0.001	0.05	1	0.05	0.05	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		0.055		0.2	0.001				1.4		3.4	1.9	0.6	11			8	950	180	80
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River	0.02														0.05	0.05				
NEPM 2013 Table 1C GILs, Fresh Waters		*0.055 | 0.055*		*0.2*	*0.001*				*1.4*		*3.4*	*1.9*	*0.06*	*11*			*8*	*950*		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<0.01	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*19*	<0.05	<1	<0.001	<0.1	<1	-	<1	<5	<1	<2	<2
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*12*	<0.05	<1	<0.001	<0.1	<1	-	<1	<5	<1	<2	<2
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	<0.01	<1	<0.1	<0.005	<0.005	-	<1	*12*	<0.01	<1	<0.005	<0.05	<1	<0.05	-	2	<1	<1	<1
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<0.01	0.02	<1	<0.1	<0.01	-	<0.01	<1	*3*	0.26	<1	0.019	<0.1	3	-	<1	*14*	<1	<2	<2
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	0.02	-	<1	<0.1	<0.01	-	<0.01	<1	*34*	-	<1	-	<0.1	3	-	-	*22*	<1	<2	<2
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	<1	-	<1	-	<0.1	<1	-	-	<5	<1	<2	<2
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	<1	-	<1	-	<0.1	<1	-	-	<5	<1	<2	<2

Statistics

Statistic	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene
Number of Results	**5**	**4**	**7**	**7**	**7**	**1**	**6**	**7**	**7**	**4**	**7**	**4**	**7**	**7**	**1**	**3**	**7**	**7**	**7**	**7**
Number of Detects	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**1**	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**
Minimum Concentration	**<0.01**	**<0.01**	**<1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**<1**	**<0.01**	**<1**	**<0.001**	**<0.05**	**<1**	**<0.05**	**<1**	**2**	**<1**	**<1**	**<1**
Minimum Detect	**0.02**	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**0.26**	**ND**	**0.019**	**ND**	**3**	**ND**	**ND**	**2**	**ND**	**ND**	**ND**
Maximum Concentration	**0.02**	**0.02**	**<1**	**<0.1**	**<0.01**	**<0.005**	**<0.01**	**<1**	**34**	**0.26**	**<1**	**0.019**	**<0.1**	**3**	**<0.05**	**<1**	**22**	**<1**	**<2**	**<2**
Maximum Detect	**0.02**	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**34**	**0.26**	**ND**	**0.019**	**ND**	**3**	**ND**	**ND**	**22**	**ND**	**ND**	**ND**
Average Concentration *	**0.008**	**0.0088**	**0.5**	**0.05**	**0.0046**		**0.005**	**0.5**	**12**	**0.079**	**0.5**	**0.0056**	**0.046**	**1.2**		**0.5**	**6.9**	**0.5**	**0.93**	**0.93**
Median Concentration *	**0.005**	**0.005**	**0.5**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**12**	**0.025**	**0.5**	**0.0015**	**0.05**	**0.5**	**0.025**	**0.5**	**2.5**	**0.5**	**1**	**1**
Standard Deviation *	**0.0067**	**0.0075**	**0**	**0**	**0.00094**		**0**	**0**	**12**	**0.12**	**0**	**0.009**	**0.0094**	**1.2**		**0**	**8**	**0**	**0.19**	**0.19**
95% UCL (Student's-t) *	**0.0144**	**0.0176**	**0.5**	**0.05**	**0.00534**		**0.005**	**0.5**	**20.45**	**0.221**	**0.5**	**0.0162**	**0.0534**	**2.11**		**0.5**	**12.7**	**0.5**	**1.067**	**1.067**
% of Detects	**20**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**71**	**25**	**0**	**25**	**0**	**29**	**0**	**0**	**43**	**0**	**0**	**0**
% of Non-Detects	**80**	**75**	**100**	**100**	**100**	**100**	**100**	**100**	**29**	**75**	**100**	**75**	**100**	**71**	**100**	**100**	**57**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	BTEX						TRH							MAH						
	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	2	1	2	0.1	1	1	10	10	50	50	100	100	50	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		350		16	16											30				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters		*350*	*550*	*16*	*16*															

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
Number of Results	7	7	6	7	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<1	<2	<0.1	<1	<1	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<1	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1	0.93	1	0.44	2.2	0.5	9.3	9.3	46	46	50	50	46	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Median Concentration *	1	1	1	0.5	2.5	0.5	10	10	50	50	50	50	50	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0.19	0	0.17	0.76	0	1.9	1.9	9.4	9.4	0	0	9.4	0.76	0.76	0.76	0.76	0.76	0.76	0.76
95% UCL (Student's-t) *	1	1.067	1	0.561	2.769	0.5	10.67	10.67	53.37	53.37	50	50	53.37	2.769	2.769	2.769	2.769	2.769	2.769	2.769
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

								Halogenated Hydrocarbons																	
						Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	10	10	5	10	1	1	1	1	1	1	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)														270	400	6,500		700				1,900	900	1,100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%																									
PFAS NEMP 2020 Freshwater 99%																									
ANZECC 2000 SE Aust - Lowland River																									
NEPM 2013 Table 1C GILs, Fresh Waters																*6,500*									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Number of Results	**7**	**7**	**7**	**7**	**7**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<10**	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<50**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.2**	**2.2**	**2.2**	**22**	**22**	**2.5**	**22**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
Median Concentration *	**2.5**	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0.76**	**0.76**	**0.76**	**7.6**	**7.6**	**0**	**7.6**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**
95% UCL (Student's-t) *	**2.769**	**2.769**	**2.769**	**27.69**	**27.69**	**2.5**	**27.69**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**	**2.769**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

						Chlorinated Hydrocarbons																			
						Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	1	10	1	10	1	1	1	1	5	2	1	1	1	1	10	4
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)									240			770							360	330	70			100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%																									
PFAS NEMP 2020 Freshwater 99%																									
ANZECC 2000 SE Aust - Lowland River																									
NEPM 2013 Table 1C GILs, Fresh Waters																			*290*						
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<5	<2	<1	<1	<1	<1	<10	<4
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
Statistics																									
Number of Results						**1**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**1**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**	**<5**	**<2**	**<1**	**<1**	**<1**	**<1**	**<10**	**<4**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<1**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<2**	**<10**	**<2**	**<5**	**<5**	**<5**	**<5**	**<50**	**<4**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**2.2**	**2.2**	**2.2**	**2.2**	**22**	**2.2**	**22**	**2.2**	**2.2**	**2.2**	**0.93**	**4.6**	**1**	**2.2**	**2.2**	**2.2**	**2.2**	**22**	
Median Concentration *						**0.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**1**	**5**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2**
Standard Deviation *							**0.76**	**0.76**	**0.76**	**0.76**	**7.6**	**0.76**	**7.6**	**0.76**	**0.76**	**0.76**	**0.19**	**0.94**	**0**	**0.76**	**0.76**	**0.76**	**0.76**	**7.6**	
95% UCL (Student's-t) *							**2.769**	**2.769**	**2.769**	**2.769**	**27.69**	**2.769**	**27.69**	**2.769**	**2.769**	**2.769**	**1.067**	**5.337**	**1**	**2.769**	**2.769**	**2.769**	**2.769**	**27.69**	
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

						Halogenated Benzenes											VOCs								
						1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	1	1	1	1	1	0.2	2	5	5	2	2	2	2	2	2	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)						10	170	160	260	60				55	0.1	2			80						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%																									
PFAS NEMP 2020 Freshwater 99%																									
ANZECC 2000 SE Aust - Lowland River																									
NEPM 2013 Table 1C GILs, Fresh Waters						*3*	*85*	*160*	*260*	*60*															
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	-	-	<2	<5	<2	-	<5	<5	<5
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2

Statistics

Number of Results	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**6**	**6**	**7**	**7**	**7**	**6**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.2**	**<2**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<2**	**<2**	**<2**	**<2**	**<5**	**<5**	**<5**	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<5**	**<2**	**<2**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.2**	**0.93**	**0.93**	**0.93**	**0.93**	**2.2**	**2.2**	**2.2**	**2.2**	**0.23**	**1**	**2.5**	**2.5**	**2.3**	**1.2**	**1**	**1**	**1.2**	**1.2**	**1.2**
Median Concentration *	**2.5**	**1**	**1**	**1**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *	**0.76**	**0.19**	**0.19**	**0.19**	**0.19**	**0.76**	**0.76**	**0.76**	**0.76**	**0.057**	**0**	**0**	**0**	**0.57**	**0.57**	**0**	**0**	**0.57**	**0.57**	**0.57**
95% UCL (Student's-t) *	**2.769**	**1.067**	**1.067**	**1.067**	**1.067**	**2.769**	**2.769**	**2.769**	**2.769**	**0.27**	**1**	**2.5**	**2.5**	**2.702**	**1.631**	**1**	**1**	**1.631**	**1.631**	**1.631**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

						4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene
						SVOCs																			
						μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	mg/L	μg/L	μg/L	μg/L	μg/L	μg/L
EQL						2	2	5	2	2	5	2	2	10	2	2	2	4	2	0.0002	2	2	2	2	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%																									
PFAS NEMP 2020 Freshwater 99%																									
ANZECC 2000 SE Aust - Lowland River																									
NEPM 2013 Table 1C GILs, Fresh Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	-	<5	<0.0002	<2	<2	<2	<2	<2
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2

Statistics

Statistics	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene
Number of Results	**6**	**7**	**1**	**7**	**7**	**1**	**7**	**7**	**1**	**7**	**7**	**7**	**6**	**7**	**4**	**1**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<5**	**<2**	**<2**	**<5**	**<2**	**<2**	**<10**	**<2**	**<2**	**<2**	**<4**	**<2**	**<0.0002**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<2**	**<10**	**<10**	**<5**	**<5**	**<4**	**<5**	**<0.004**	**<2**	**<2**	**<2**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1.2**		**1.2**	**1.2**		**1.2**	**1**		**1.6**	**1.2**	**1.2**	**2**	**1.2**	**0.0015**		**1**	**1**	**1**	**1**
Median Concentration *	**1**	**1**	**2.5**	**1**	**1**	**2.5**	**1**	**1**	**5**	**1**	**1**	**1**	**2**	**1**	**0.002**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *	**0**	**0.57**		**0.57**	**0.57**		**0.57**	**0**		**1.5**	**0.57**	**0.57**	**0**	**0.57**	**0.00095**		**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**	**1.631**		**1.631**	**1.631**		**1.631**	**1**		**2.682**	**1.631**	**1.631**	**2**	**1.631**	**0.00264**		**1**	**1**	**1**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

	PAH																			
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9
	µg/L	µg/L	µg/L	µg/L	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	µg/L	mg/L	µg/L
EQL	0.1	0.1	0.1	0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			0.4		0.2						1.4			2						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20

Statistics

Statistics	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9
Number of Results	**7**	**7**	**7**	**7**	**7**	**6**	**7**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**1**	**6**	**6**	**1**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<1**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<10**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**	**<20**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.44**	**0.44**	**0.44**	**0.44**	**0.22**	**0.5**	**0.44**	**0.5**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**		**0.00025**	**0.25**		**9.3**
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**	**10**
Standard Deviation *	**0.17**	**0.17**	**0.17**	**0.17**	**0.076**	**0**	**0.17**	**0**	**0.17**	**0.17**	**0.17**	**0.17**	**0.17**	**0.17**	**0.17**		**0**	**0**		**1.9**
95% UCL (Student's-t) *	**0.561**	**0.561**	**0.561**	**0.561**	**0.277**	**0.5**	**0.561**	**0.5**	**0.561**	**0.561**	**0.561**	**0.561**	**0.561**	**0.561**	**0.561**		**0.00025**	**0.25**		**10.67**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							TPH				Phenols															
							C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							50	100	50	50	2	2	0.02	2	0.01	2	2	2	2	2	4	2	20	20	2	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											20		0.045	20		160			490							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																										
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Freshwater 99%																										
ANZECC 2000 SE Aust - Lowland River																										
NEPM 2013 Table 1C GILs, Fresh Waters											*10*		*0.045*	*3*		*120*			*340*							
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																					
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**		<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**		<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**		<50	<100	<100	<50	<2	<2	<0.02	<2	-	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	-
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**		<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**		<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**		<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**		<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
Statistics																										
Number of Results							**7**	**7**	**7**	**7**	**1**	**7**	**1**	**7**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**1**	**1**	**7**	**6**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration							**<50**	**<100**	**<50**	**<50**	**<2**	**<2**	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<20**	**<20**	**<2**	**<10**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration							**<50**	**<100**	**<100**	**<50**	**<2**	**<2**	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<20**	**<20**	**<5**	**<10**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *							**25**	**50**	**29**	**25**		**1**		**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**			**1.2**	**5**
Median Concentration *							**25**	**50**	**25**	**25**	**1**	**1**	**0.01**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**10**	**10**	**1**	**5**
Standard Deviation *							**0**	**0**	**9.4**	**0**		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0.57**	**0**
95% UCL (Student's-t) *							**25**	**50**	**35.51**	**25**		**1**		**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**			**1.631**	**5**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

			PCBs								Explosives									
	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	4	2	2	2	2	2	2	2	2	1	0.002	0.005	4	4	2	0.2	0.2	0.5	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	10	320				0.6		0.03					65		550					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters	*3.6*	*320*				*0.3*		*0.01*												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<10	<2	<2	<2	<2	<2	<2	<2	<2	-	-	<0.005	-	<5	<5	<0.2	<0.2	-	<0.2	<0.2
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC
Number of Results	**7**	**7**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**6**	**6**	**1**	**6**	**7**	**7**	**7**	**7**	**6**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<4**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<0.002**	**<0.005**	**<4**	**<4**	**<2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<0.002**	**<0.005**	**<4**	**<5**	**<5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.4**	**1**								**0.5**	**0.001**		**2**	**2.1**	**1.2**	**0.23**	**0.23**	**0.25**	**0.23**	**0.23**
Median Concentration *	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0.5**	**0.001**	**0.0025**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**1.1**	**0**								**0**	**0**		**0**	**0.19**	**0.57**	**0.057**	**0.057**	**0**	**0.057**	**0.057**
95% UCL (Student's-t) *	**3.261**	**1**								**0.5**	**0.001**		**2**	**2.21**	**1.631**	**0.27**	**0.27**	**0.25**	**0.27**	**0.27**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

	Organochlorine Pesticides																			
	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.08					0.01						0.02			0.2	0.09			0.02	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters	*0.03*					*0.006*						*0.01*			*0.2*	*0.01*				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5

Statistics

Statistics	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl
Number of Results	**6**	**7**	**7**	**7**	**7**	**7**	**6**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.23**	**0.23**	**0.23**	**0.23**	**0.87**	**0.25**	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**	**0.36**	**0.23**	**0.23**	**0.23**	**0.87**	**0.23**	**0.23**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**
Standard Deviation *	**0**	**0.057**	**0.057**	**0.057**	**0.057**	**0.34**	**0**	**0.057**	**0.057**	**0.057**	**0.057**	**0.057**	**0.057**	**0.28**	**0.057**	**0.057**	**0.057**	**0.34**	**0.057**	**0.057**
95% UCL (Student's-t) *	**0.25**	**0.27**	**0.27**	**0.27**	**0.27**	**1.121**	**0.25**	**0.27**	**0.27**	**0.27**	**0.27**	**0.27**	**0.27**	**0.565**	**0.27**	**0.27**	**0.27**	**1.121**	**0.27**	**0.27**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	Organophosphorous Pesticides																			
	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			0.01				0.01		0.15				0.2			0.05				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters			*0.01*				*0.01*		*0.15*				*0.2*			*0.05*				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0

Statistics

Statistics	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos
Number of Results	**6**	**6**	**7**	**7**	**1**	**6**	**7**	**7**	**7**	**1**	**1**	**7**	**1**	**7**	**7**	**7**	**1**	**1**	**7**	**6**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**0.23**	**0.23**		**0.25**	**0.23**	**0.23**	**0.23**			**0.23**		**0.23**	**0.23**	**0.23**			**0.87**	**1**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**2.5**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.1**	**0.1**	**1**	**1**
Standard Deviation *	**0**	**0**	**0.057**	**0.057**		**0**	**0.057**	**0.057**	**0.057**			**0.057**		**0.057**	**0.057**	**0.057**			**0.34**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.27**	**0.27**		**0.25**	**0.27**	**0.27**	**0.27**			**0.27**		**0.27**	**0.27**	**0.27**			**1.121**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

						Pesticides										Herbicides				
	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.5	0.2	5	2	2	0.2	0.5	0.01	0.01	0.01	0.01	0.01	10	0.01	10	10	20	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.004									0.036		0.28								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters	*0.004*									*0.036*		*0.28*								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<0.2	<0.2	-	<0.2	<5	-	<5	<0.2	-	-	-	-	-	-	-	-	-	-	<20	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10

Statistics

Statistics	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr
Number of Results	**7**	**1**	**6**	**1**	**1**	**6**	**7**	**1**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**1**	**6**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<10**	**<0.01**	**<10**	**<10**	**<20**	**<10**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<5**	**<0.2**	**<0.5**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<10**	**<0.01**	**<10**	**<10**	**<20**	**<10**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.87**		**0.25**			**1**	**1.2**		**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**5**	**5**		**5**
Median Concentration *	**1**	**0.1**	**0.25**	**0.1**	**2.5**	**1**	**1**	**0.1**	**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**5**	**5**	**10**	**5**
Standard Deviation *	**0.34**		**0**			**0**	**0.57**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
95% UCL (Student's-t) *	**1.121**		**0.25**			**1**	**1.631**		**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**5**	**5**		**5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T15. Groundwater Analytical Results – Freshwater Water Quality Criteria (October 2024 GME)

											Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals	
						2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*
						µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	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						10	10	10	2	0.01	0.01	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05	0.01	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%													0.13						220						
PFAS NEMP 2020 Freshwater 99%													0.00023						19						
ANZECC 2000 SE Aust - Lowland River																									
NEPM 2013 Table 1C GILs, Fresh Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	<10	<10	<10	<2	<0.01	0.04	0.11	0.09	0.20	<0.1	0.12	0.10	0.04	0.07	<0.05	<0.05	<0.05	<0.05	0.57	-
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<10	<10	<10	<2	<0.01	0.04	0.12	0.10	0.22	<0.1	0.13	0.11	0.05	0.07	<0.05	<0.05	<0.05	<0.05	0.62	-
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	-	-	-	-	-	0.04	0.12	0.09	0.21	-	-	-	-	0.06	-	<0.01	<0.02	-	-	0.15
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	<10	<10	<10	<2	<0.01	<0.02	0.01	0.01	0.02	<0.1	0.07	0.06	<0.02	0.04	<0.05	<0.05	<0.05	<0.05	0.19	-
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	<10	<10	<10	<2	<0.01	<0.02	<0.01	0.02	0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.05	<0.05	<0.05	<0.05	0.04	-
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-
Statistics																									
Number of Results						**6**	**6**	**6**	**6**	**6**	**7**	**7**	**7**	**7**	**6**	**6**	**6**	**6**	**7**	**6**	**7**	**7**	**6**	**6**	**1**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**3**	**4**	**5**	**5**	**0**	**3**	**3**	**2**	**5**	**0**	**0**	**0**	**0**	**4**	**1**
Minimum Concentration						**<10**	**<10**	**<10**	**<2**	**<0.01**	**<0.02**	**0.01**	**0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**	**<0.01**	**<0.02**	**<0.05**	**<0.01**	**0.15**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**0.04**	**0.01**	**0.01**	**0.02**	**ND**	**0.07**	**0.06**	**0.04**	**0.02**	**ND**	**ND**	**ND**	**ND**	**0.04**	**0.15**
Maximum Concentration						**<10**	**<10**	**<10**	**<2**	**<0.01**	**0.04**	**0.12**	**0.1**	**0.22**	**<0.1**	**0.13**	**0.11**	**0.05**	**0.07**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**0.62**	**0.15**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**0.04**	**0.12**	**0.1**	**0.22**	**ND**	**0.13**	**0.11**	**0.05**	**0.07**	**ND**	**ND**	**ND**	**ND**	**0.62**	**0.15**
Average Concentration *						**5**	**5**	**5**	**1**	**0.005**	**0.023**	**0.054**	**0.046**	**0.097**	**0.05**	**0.058**	**0.05**	**0.022**	**0.039**	**0.025**	**0.022**	**0.023**	**0.025**	**0.24**	
Median Concentration *						**5**	**5**	**5**	**1**	**0.005**	**0.01**	**0.01**	**0.02**	**0.02**	**0.05**	**0.04**	**0.035**	**0.01**	**0.04**	**0.025**	**0.025**	**0.025**	**0.025**	**0.115**	**0.15**
Standard Deviation *						**0**	**0**	**0**	**0**	**0**	**0.016**	**0.059**	**0.045**	**0.11**	**0**	**0.057**	**0.047**	**0.018**	**0.029**	**0**	**0.0076**	**0.0057**	**0**	**0.29**	
95% UCL (Student's-t) *						**5**	**5**	**5**	**1**	**0.005**	**0.0346**	**0.097**	**0.0787**	**0.175**	**0.05**	**0.105**	**0.0886**	**0.0368**	**0.0598**	**0.025**	**0.0277**	**0.027**	**0.025**	**0.473**	
% of Detects						**0**	**0**	**0**	**0**	**0**	**43**	**57**	**71**	**71**	**0**	**50**	**50**	**33**	**71**	**0**	**0**	**0**	**0**	**67**	**100**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**57**	**43**	**29**	**29**	**100**	**50**	**50**	**67**	**29**	**100**	**100**	**100**	**100**	**33**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

							Nitroaromatics			Other		Phthalates							Solvents						
						Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL						0.01	2	2	2	2	0.0002	10	2	50	2	2	2	2	50	50	50	5	0.001	2	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)															1,000	3,700	26								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Freshwater 95%																									
PFAS NEMP 2020 Freshwater 99%																									
ANZECC 2000 SE Aust - Lowland River																									
NEPM 2013 Table 1C GILs, Fresh Waters															*1,000*	*3,700*	*10*								
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	0.32	-	-	<5	<5	<0.0002	-	<10	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50

Statistics

	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
Number of Results	**1**	**6**	**6**	**7**	**7**	**1**	**6**	**7**	**1**	**7**	**7**	**7**	**7**	**6**	**6**	**6**	**6**	**1**	**7**	**6**
Number of Detects	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**0.32**	**<2**	**<2**	**<2**	**<2**	**<0.0002**	**<10**	**<2**	**<50**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<2**	**<50**
Minimum Detect	**0.32**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**0.32**	**<2**	**<2**	**<5**	**<5**	**<0.0002**	**<10**	**<10**	**<50**	**<10**	**<10**	**<50**	**<50**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<5**	**<50**
Maximum Detect	**0.32**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *		**1**	**1**	**1.2**	**1.2**		**5**	**1.6**		**1.6**	**1.6**	**4.4**	**4.4**	**25**	**25**	**25**	**2.5**		**1.2**	**25**
Median Concentration *	**0.32**	**1**	**1**	**1**	**1**	**0.0001**	**5**	**1**	**25**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**0.0005**	**1**	**25**
Standard Deviation *		**0**	**0**	**0.57**	**0.57**		**0**	**1.5**		**1.5**	**1.5**	**9.1**	**9.1**	**0**	**0**	**0**	**0**		**0.57**	**0**
95% UCL (Student's-t) *		**1**	**1**	**1.631**	**1.631**		**5**	**2.682**		**2.682**	**2.682**	**11.09**	**11.09**	**25**	**25**	**25**	**2.5**		**1.631**	**25**
% of Detects	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

						Amino Aliphatics			Physico-Chemical & Major Ions																
						N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
						µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL						2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Interim Marine 95%																									
PFAS NEMP 2020 Interim Marine 99%																									
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)											3.29			37,300											
ANZECC 2000 SE Aust - Estuaries											7-8.5														
NEPM 2013 Table 1C GILs, Marine Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766009	**CZ1/Shallow**	**SMW_WTP_BH25_W**		**22 Oct 2024**	**Water**	<2	<2	<2	86.0	5.26	5.29	21,700	4.8	27,800	6,240	5,330	<1	<1	48	48	292	627	4,640	114	288
ES2434766010	**CZ1/Shallow**	**SMW_WTP_BH25_S**		**22 Oct 2024**	**Water**	<2	<2	<2	126	7.36	7.37	4,300	5.8	2,600	776	367	<1	<1	709	709	222	82	639	27	43.7
ES2434907003	**CZ1/Shallow**	**CZ1_BH13_W**		**23 Oct 2024**	**Water**	<2	<2	<2	260	6.63	6.78	26,100	6.0	19,400	8,970	2,290	<1	<1	242	242	262	585	5,880	167	306

Statistics

Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**0**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Minimum Concentration	**<2**	**<2**	**<2**	**86**	**5.26**	**5.29**	**4,300**	**4.8**	**2,600**	**776**	**367**	**<1**	**<1**	**48**	**48**	**222**	**82**	**639**	**27**	**43.7**
Minimum Detect	**ND**	**ND**	**ND**	**86**	**5.26**	**5.29**	**4,300**	**4.8**	**2,600**	**776**	**367**	**ND**	**ND**	**48**	**48**	**222**	**82**	**639**	**27**	**43.7**
Maximum Concentration	**<2**	**<2**	**<2**	**260**	**7.36**	**7.37**	**26,100**	**6**	**27,800**	**8,970**	**5,330**	**<1**	**<1**	**709**	**709**	**292**	**627**	**5,880**	**167**	**306**
Maximum Detect	**ND**	**ND**	**ND**	**260**	**7.36**	**7.37**	**26,100**	**6**	**27,800**	**8,970**	**5,330**	**ND**	**ND**	**709**	**709**	**292**	**627**	**5,880**	**167**	**306**
Average Concentration *	**1**	**1**	**1**	**157**	**6.4**	**6.5**	**17,367**	**5.5**	**16,600**	**5,329**	**2,662**	**0.5**	**0.5**	**333**	**333**	**259**	**431**	**3,720**	**103**	**213**
Median Concentration *	**1**	**1**	**1**	**126**	**6.63**	**6.78**	**21,700**	**5.8**	**19,400**	**6,240**	**2,290**	**0.5**	**0.5**	**242**	**242**	**262**	**585**	**4,640**	**114**	**288**
Standard Deviation *	**0**	**0**	**0**	**91**	**1.1**	**1.1**	**11,528**	**0.64**	**12,831**	**4,172**	**2,502**	**0**	**0**	**340**	**340**	**35**	**303**	**2,739**	**71**	**147**
95% UCL (Student's-t) *	**1**	**1**	**1**	**311**	**8.214**	**8.287**	**36,801**	**6.617**	**38,232**	**12,363**	**6,881**	**0.5**	**0.5**	**905.8**	**905.8**	**317.9**	**942.6**	**8,337**	**221.8**	**459.6**
% of Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

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				Amino Aromatics		Anilines						Nutrients								
	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
	meq/L	%	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.01	1	2	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												0.91								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														2.4						
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)												1.9					2.32	0.2		
ANZECC 2000 SE Aust - Estuaries																	0.3		0.005	
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	271	3.05	3,310	<2	<4	<4	<4	<2	<2	<2	<2	1.46	4.9	<0.01	<0.01	<0.01	4.9	0.09	<0.01	0.68
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	46.3	2.90	892	<2	<4	<4	<4	<2	<2	<2	<2	8.91	10.2	0.61	<0.01	0.61	10.8	0.08	<0.01	<0.01
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	321	2.51	3,060	<2	<4	<4	<4	<2	<2	<2	<2	0.33	0.9	<0.01	<0.01	<0.01	0.9	0.16	<0.01	<0.10#1

Statistics

Statistics	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**1**	**0**	**1**	**3**	**3**	**0**	**1**
Minimum Concentration	**46.3**	**2.51**	**892**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.33**	**0.9**	**<0.01**	**<0.01**	**<0.01**	**0.9**	**0.08**	**<0.01**	**<0.01**
Minimum Detect	**46.3**	**2.51**	**892**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.33**	**0.9**	**0.61**	**ND**	**0.61**	**0.9**	**0.08**	**ND**	**0.68**
Maximum Concentration	**321**	**3.05**	**3,310**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**8.91**	**10.2**	**0.61**	**<0.01**	**0.61**	**10.8**	**0.16**	**<0.01**	**0.68**
Maximum Detect	**321**	**3.05**	**3,310**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**8.91**	**10.2**	**0.61**	**ND**	**0.61**	**10.8**	**0.16**	**ND**	**0.68**
Average Concentration *	**213**	**2.8**	**2,421**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**3.6**	**5.3**	**0.21**	**0.005**	**0.21**	**5.5**	**0.11**	**0.005**	**0.25**
Median Concentration *	**271**	**2.9**	**3,060**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1.46**	**4.9**	**0.005**	**0.005**	**0.005**	**4.9**	**0.09**	**0.005**	**0.05**
Standard Deviation *	**146**	**0.28**	**1,330**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4.7**	**4.7**	**0.35**	**0**	**0.35**	**5**	**0.044**	**0**	**0.38**
95% UCL (Student's-t) *	**459.4**	**3.29**	**4,662**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**11.43**	**13.2**	**0.796**	**0.005**	**0.796**	**13.93**	**0.183**	**0.005**	**0.881**
% of Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**33**	**0**	**33**	**100**	**100**	**0**	**33**
% of Non-Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**67**	**100**	**67**	**0**	**0**	**100**	**67**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

	Metals													BTEX						
	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	0.01	0.01	1	1	0.05	1	0.001	0.1	1	1	5	1	2	2	2	2	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		5.5	0.0044	0.027		1.3		4.4		0.4	70		8	700	180	80				70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)	5.95				5	8		6	1.201		54	0.2	154							
ANZECC 2000 SE Aust - Estuaries												0.03								
NEPM 2013 Table 1C GILs, Marine Waters		0.7	0.0044	0.027		1.3		4.4		0.1	7		15	500						50

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	10	<0.1	<0.01	<0.01	3	1	815	1	1.02	<0.1	30	<1	166	<1	<2	<2	<2	<2	<2	<1.0
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	5	<0.1	<0.01	<0.01	<1	1	2.98	<1	0.258	<0.1	13	<1	20	2	<2	<2	<2	<2	<2	<1.0
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<10[#1]	<1.0[#1]	<0.01	<0.01	<10[#1]	<10[#1]	1.95	<10[#1]	0.552	<0.1	<10[#1]	-	<50[#1]	<1	<2	<2	<2	<2	<2	<1.0

Statistics

Statistics	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
Number of Results	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3
Number of Detects	2	0	0	0	1	2	3	1	3	0	2	0	2	1	0	0	0	0	0	0
Minimum Concentration	5	<0.1	<0.01	<0.01	<1	1	1.95	1	0.258	<0.1	<10	<1	20	<1	<2	<2	<2	<2	<2	<1
Minimum Detect	5	ND	ND	ND	3	1	1.95	1	0.258	ND	13	ND	20	2	ND	ND	ND	ND	ND	ND
Maximum Concentration	10	<1	<0.01	<0.01	<10	<10	815	<10	1.02	<0.1	30	<1	166	2	<2	<2	<2	<2	<2	<1
Maximum Detect	10	ND	ND	ND	3	1	815	1	1.02	ND	30	ND	166	2	ND	ND	ND	ND	ND	ND
Average Concentration *	6.7	0.2	0.005	0.005	2.8	2.3	273	2.2	0.61	0.05	16	0.5	70	1	1	1	1	1	1	0.5
Median Concentration *	5	0.05	0.005	0.005	3	1	2.98	1	0.552	0.05	13	0.5	25	0.5	1	1	1	1	1	0.5
Standard Deviation *	2.9	0.26	0	0	2.3	2.3	469	2.5	0.38	0	13	0	83	0.87	0	0	0	0	0	0
95% UCL (Student's-t) *	11.53	0.638	0.005	0.005	6.634	6.227	1,064	6.325	1.258	0.05	37.52	0.5	210.1	2.46	1	1	1	1	1	0.5
% of Detects	67	0	0	0	33	67	100	33	100	0	67	0	67	33	0	0	0	0	0	0
% of Non-Detects	33	100	100	100	67	33	0	67	0	100	33	100	33	67	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

			TRH							MAH									Haloge
	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	1	20	20	100	100	100	100	100	5	5	5	5	5	5	5	5	5	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70											30								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters	50																			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<5	2	490	490	<100	<100	320	<100	320	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50

Statistics

Statistics	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**1**	**1**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Minimum Detect	**ND**	**2**	**490**	**490**	**ND**	**ND**	**320**	**ND**	**320**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**2**	**490**	**490**	**<100**	**<100**	**320**	**<100**	**320**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Maximum Detect	**ND**	**2**	**490**	**490**	**ND**	**ND**	**320**	**ND**	**320**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**1**	**170**	**170**	**50**	**50**	**140**	**50**	**140**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Median Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Standard Deviation *	**0**	**0.87**	**277**	**277**	**0**	**0**	**156**	**0**	**156**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**2.46**	**637.2**	**637.2**	**50**	**50**	**402.8**	**50**	**402.8**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
% of Detects	**0**	**33**	**33**	**33**	**0**	**0**	**33**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**67**	**67**	**67**	**100**	**100**	**67**	**100**	**67**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

	nated Hydrocarbons			Chlorinated Hydrocarbons																
	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	50	5	50	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					270	400	1,900		700				1,900	900	1,100				240	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters							1,900													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	Halogenated Benz 1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	50	5	50	5	5	5	2	10	2	5	5	5	5	50	5	2	2	2	2	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		770								330	70			100		80				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																20				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	4	<2	20	31	<5
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5

Statistics

Statistics	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4	ND	20	31	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	4	<2	20	31	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4	ND	20	31	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	2	1	7.3	11	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7	0	11	17	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	4.92	1	25.83	40.2	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	33	33	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	67	100	67	67	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	enes					VOCs				SVOCs										
	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	5	5	0.5	2	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			55	0.1	2			80												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<5	<5	479	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

Statistics

Statistics	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	479	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	479	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	479	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	161	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	1	1	1	1
Median Concentration *	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	1	1	1	1
Standard Deviation *	0	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	625.1	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	1	1	1	1
% of Detects	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	67	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

epic
A Montrose Environmental Company

	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	PAH Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	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	2	2	2	4	2	0.004	2	2	2	2	1	1	1	1	0.5	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													0.4		0.2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<2	<2	<2	<4	<2	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<2	<2	<2	<4	<2	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0

Statistics

	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
Number of Results	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1	1	1	2	1		1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5
Median Concentration *	1	1	1	2	1	0.002	1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5
Standard Deviation *	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	1	1	1	2	1		1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

								TPH					Phenols							
	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	0.0005	0.5	20	50	100	50	50	2	2	0.01	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	1.4			2																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	450	<50	280	60	340	<2	<2	<0.01	<2	<2	<2	<2	<2
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	-	<2	<2	<2	<2	<2

Statistics

Statistics	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	450	ND	280	60	340	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<0.0005	<0.5	450	<50	280	60	340	<2	<2	<0.01	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	450	ND	280	60	340	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	157	25	127	37	130	1	1	0.005	1	1	1	1	1
Median Concentration *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1	0.005	1	1	1	1	1
Standard Deviation *	0	0	0	0	0	0	0	254	0	133	20	182	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	584.9	25	350.5	70.73	436.6	1	1	0.005	1	1	1	1	1
% of Detects	0	0	0	0	0	0	0	33	0	33	33	33	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	67	100	67	67	67	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
							PCBs	Explosives												
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	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	4	2	2	10	4	2	1	0.002	4	4	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					22	400														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters					11	400														

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<4	<2	<2	-	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
Number of Results	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2	1	1	5	2	1	0.5	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	2	1	1	5	2	1	0.5	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2	1	1	5	2	1	0.5	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

	Organochlorine Pesticides																			
	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.008											0.009	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters								0.004											0.009	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

	Organophosphorous Pesticides												Pesticides							
	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
	µg/L	µg/L	µg/L	µg/L	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	mg/L	mg/L
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	2	2	0.5	0.01	0.01	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	-	-	-	-	-

Statistics

Statistics	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**	**<0.5**	**<2**	**<2**	**<0.5**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<2**	**<2**	**<0.5**	**<2**	**<2**	**<0.5**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**1**	**1**	**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**1**	**1**	**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**1**	**1**	**0.25**	**1**	**1**	**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

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	Herbicides										Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					F
	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	0.01	10	10	10	10	10	10	2	0.01	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%													0.13						220	
PFAS NEMP 2020 Interim Marine 99%													0.00023						19	
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	2,4-DB	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	0.10	0.09	<0.01	0.09	<0.1	0.02	0.06	0.02	0.03	<0.05
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	-	-	-	-	-	-	-	-	<2	-	0.41	1.11	0.46	1.57	<0.1	0.08	0.35	0.04	0.07	<0.05

Statistics

Statistics	2,4-DB	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS
Number of Results	2	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	2	2	1	2	0	2	2	2	2	0
Minimum Concentration	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	0.02	<0.02	0.02	<0.01	<0.05
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	0.09	0.46	0.09	ND	0.02	0.06	0.02	0.03	ND
Maximum Concentration	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	0.41	1.11	0.46	1.57	<0.1	0.08	0.35	0.04	0.07	<0.05
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.41	1.11	0.46	1.57	ND	0.08	0.35	0.04	0.07	ND
Average Concentration *	5	0.005	5	5	5	5	5	5	1	0.005	0.17	0.4	0.16	0.56	0.05	0.037	0.14	0.023	0.035	0.025
Median Concentration *	5	0.005	5	5	5	5	5	5	1	0.005	0.1	0.09	0.005	0.09	0.05	0.02	0.06	0.02	0.03	0.025
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0.21	0.61	0.26	0.88	0	0.038	0.18	0.015	0.033	0
95% UCL (Student's-t) *	5	0.005	5	5	5	5	5	5	1	0.005	0.527	1.438	0.6	2.039	0.05	0.1	0.449	0.0491	0.0903	0.025
% of Detects	0	0	0	0	0	0	0	0	0	0	67	67	33	67	0	67	67	67	67	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	33	33	67	33	100	33	33	33	33	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T16. Groundwater Analytical Results – Clyde Zone 1 Shallow Aquifer Criteria (October 2024 GME)

	luorotelomer Sulfonic Acids			PFAS Totals	Nitroaromatics			Other	Phthalates						Solvents					
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.05	0.05	0.05	0.01	2	2	2	2	10	2	2	2	2	2	50	50	50	5	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ1-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
ES2434766009	CZ1/Shallow	SMW_WTP_BH25_W		22 Oct 2024	Water	<0.05	<0.05	<0.05	<0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
ES2434766010	CZ1/Shallow	SMW_WTP_BH25_S		22 Oct 2024	Water	<0.05	<0.05	<0.05	0.32	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
ES2434907003	CZ1/Shallow	CZ1_BH13_W		23 Oct 2024	Water	<0.05	<0.05	<0.05	2.52	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50

Statistics

Statistics	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.05	<0.05	<0.05	<0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
Minimum Detect	ND	ND	ND	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.05	<0.05	<0.05	2.52	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
Maximum Detect	ND	ND	ND	2.52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.025	0.025	0.025	0.95	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
Median Concentration *	0.025	0.025	0.025	0.32	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
Standard Deviation *	0	0	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.025	0.025	0.025	3.258	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
% of Detects	0	0	0	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T17. Groundwater Analytical Results – Rosehill Shallow Aquifer Criteria (October 2024 GME)

	Amino Aliphatics			Physico-Chemical & Major Ions																
	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)						4.9			23,970											
ANZECC 2000 SE Aust - Estuaries						7-8.5														
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<2	<2	<2	38.7	6.52	6.52	5,970	6.7	3,840	1,730	344	<1	<1	174	174	61	135	1,220	9	59.4
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<2	<2	<2	226	5.29	5.58	17,400	3.9	13,000	6,240	996	<1	<1	28	28	75	471	3,430	8	197
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<2	<2	<2	249	5.54	5.88	5,000	3.8	3,350	1,230	650	<1	<1	39	39	34	86	1,040	2	49.0

Statistics

Statistics	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	3	3	3	3	3	3	3	3	0	0	3	3	3	3	3	3	3
Minimum Concentration	<2	<2	<2	38.7	5.29	5.58	5,000	3.8	3,350	1,230	344	<1	<1	28	28	34	86	1,040	2	49
Minimum Detect	ND	ND	ND	38.7	5.29	5.58	5,000	3.8	3,350	1,230	344	ND	ND	28	28	34	86	1,040	2	49
Maximum Concentration	<2	<2	<2	249	6.52	6.52	17,400	6.7	13,000	6,240	996	<1	<1	174	174	75	471	3,430	9	197
Maximum Detect	ND	ND	ND	249	6.52	6.52	17,400	6.7	13,000	6,240	996	ND	ND	174	174	75	471	3,430	9	197
Average Concentration *	1	1	1	171	5.8	6	9,457	4.8	6,730	3,067	663	0.5	0.5	80	80	57	231	1,897	6.3	102
Median Concentration *	1	1	1	226	5.54	5.88	5,970	3.9	3,840	1,730	650	0.5	0.5	39	39	61	135	1,220	8	59.4
Standard Deviation *	0	0	0	115	0.65	0.48	6,896	1.6	5,436	2,760	326	0	0	81	81	21	210	1,331	3.8	83
95% UCL (Student's-t) *	1	1	1	365.7	6.879	6.803	21,083	7.575	15,893	7,719	1,213	0.5	0.5	217.4	217.4	91.8	584	4,140	12.72	241.1
% of Detects	0	0	0	100	100	100	100	100	100	100	100	0	0	100	100	100	100	100	100	100
% of Non-Detects	100	100	100	0	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T17. Groundwater Analytical Results – Rosehill Shallow Aquifer Criteria (October 2024 GME)

				Amino Aromatics		Anilines						Nutrients								
	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
	meq/L	%	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.01	1	2	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												0.91								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														2.4						
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)												1.32					2.1	0.8		
ANZECC 2000 SE Aust - Estuaries																	0.3		0.005	
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	67.4	6.31	708	<2	<4	<4	<4	<2	<2	<2	<2	0.08	0.3	<0.01	<0.01	<0.01	0.3	0.06	<0.01	<0.01
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	192	1.39	2,130	<2	<4	<4	<4	<2	<2	<2	<2	0.10	0.3	<0.01	<0.01	<0.01	0.3	0.08	<0.01	0.63
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	54.1	4.90	439	<2	<4	<4	<4	<2	<2	<2	<2	<0.01	0.2	0.10	<0.01	0.10	0.3	0.04	<0.01	0.06

Statistics

Statistics	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**3**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**1**	**0**	**1**	**3**	**3**	**0**	**2**
Minimum Concentration	**54.1**	**1.39**	**439**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**<0.01**	**0.2**	**<0.01**	**<0.01**	**<0.01**	**0.3**	**0.04**	**<0.01**	**<0.01**
Minimum Detect	**54.1**	**1.39**	**439**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.08**	**0.2**	**0.1**	**ND**	**0.1**	**0.3**	**0.04**	**ND**	**0.06**
Maximum Concentration	**192**	**6.31**	**2,130**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.1**	**0.3**	**0.1**	**<0.01**	**0.1**	**0.3**	**0.08**	**<0.01**	**0.63**
Maximum Detect	**192**	**6.31**	**2,130**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.1**	**0.3**	**0.1**	**ND**	**0.1**	**0.3**	**0.08**	**ND**	**0.63**
Average Concentration *	**104**	**4.2**	**1,092**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**0.062**	**0.27**	**0.037**	**0.005**	**0.037**	**0.3**	**0.06**	**0.005**	**0.23**
Median Concentration *	**67.4**	**4.9**	**708**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**0.08**	**0.3**	**0.005**	**0.005**	**0.005**	**0.3**	**0.06**	**0.005**	**0.06**
Standard Deviation *	**76**	**2.5**	**909**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.05**	**0.058**	**0.055**	**0**	**0.055**	**0**	**0.02**	**0**	**0.35**
95% UCL (Student's-t) *	**232.7**	**8.471**	**2,624**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**0.146**	**0.364**	**0.129**	**0.005**	**0.129**	**0.3**	**0.0937**	**0.005**	**0.815**
% of Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**67**	**100**	**33**	**0**	**33**	**100**	**100**	**0**	**67**
% of Non-Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**33**	**0**	**67**	**100**	**67**	**0**	**0**	**100**	**33**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T17. Groundwater Analytical Results – Rosehill Shallow Aquifer Criteria (October 2024 GME)

	Metals													BTEX						
	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	0.01	0.01	1	1	0.05	1	0.001	0.1	1	1	5	1	2	2	2	2	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		5.5	0.0044	0.027		1.3		4.4		0.4	70		8	700	180	80				70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)	5					4			0.768		30	0.8	88							
ANZECC 2000 SE Aust - Estuaries												0.03								
NEPM 2013 Table 1C GILs, Marine Waters		0.7	0.0044	0.027		1.3		4.4		0.1	7		15	500						50

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<1	<0.1	<0.01	<0.01	<1	2	7.14	<1	0.070	<0.1	4	<1	<5	<1	<2	<2	<2	<2	<2	<1.0
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	2	0.2	<0.01	<0.01	3	73	2.07	2	0.386	<0.1	106	-	111	<1	<2	<2	<2	<2	<2	<1.0
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<1	0.1	<0.01	<0.01	<1	4	0.53	<1	0.638	<0.1	14	-	43	<1	<2	<2	<2	<2	<2	<1.0

Statistics

Statistics	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**1**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**1**	**2**	**0**	**0**	**1**	**3**	**3**	**1**	**3**	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**0.1**	**<0.01**	**<0.01**	**<1**	**2**	**0.53**	**<1**	**0.07**	**<0.1**	**4**	**<1**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Minimum Detect	**2**	**0.1**	**ND**	**ND**	**3**	**2**	**0.53**	**2**	**0.07**	**ND**	**4**	**ND**	**43**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**2**	**0.2**	**<0.01**	**<0.01**	**3**	**73**	**7.14**	**2**	**0.638**	**<0.1**	**106**	**<1**	**111**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Maximum Detect	**2**	**0.2**	**ND**	**ND**	**3**	**73**	**7.14**	**2**	**0.638**	**ND**	**106**	**ND**	**111**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**0.12**	**0.005**	**0.005**	**1.3**	**26**	**3.2**	**1**	**0.36**	**0.05**	**41**		**52**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Median Concentration *	**0.5**	**0.1**	**0.005**	**0.005**	**0.5**	**4**	**2.07**	**0.5**	**0.386**	**0.05**	**14**	**0.5**	**43**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Standard Deviation *	**0.87**	**0.076**	**0**	**0**	**1.4**	**40**	**3.5**	**0.87**	**0.28**	**0**	**56**		**55**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.46**	**0.245**	**0.005**	**0.005**	**3.767**	**94.49**	**9.077**	**2.46**	**0.844**	**0.05**	**136.1**		**144.6**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
% of Detects	**33**	**67**	**0**	**0**	**33**	**100**	**100**	**33**	**100**	**0**	**100**	**0**	**67**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**67**	**33**	**100**	**100**	**67**	**0**	**0**	**67**	**0**	**100**	**0**	**100**	**33**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

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			TRH							MAH									Haloge	
	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	1	20	20	100	100	100	100	100	5	5	5	5	5	5	5	5	5	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70											30								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters	50																			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50

Statistics

Statistics	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Median Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	nated Hydrocarbons			Chlorinated Hydrocarbons																
	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	50	5	50	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					270	400	1,900		700				1,900	900	1,100				240	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters							1,900													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

																Halogenated Benz					
	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	50	5	50	5	5	5	2	10	2	5	5	5	5	50	5	2	2	2	2	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		770								330	70			100		80				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																20				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5

Statistics

Statistics	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						enes					VOCs				SVOCs										
						4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						5	5	5	0.5	2	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								55	0.1	2			80												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Interim Marine 95%																									
PFAS NEMP 2020 Interim Marine 99%																									
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																									
ANZECC 2000 SE Aust - Estuaries																									
NEPM 2013 Table 1C GILs, Marine Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766012	**Rosehill/Shallow**	**SMW_WTP_BH13_W**		**22 Oct 2024**	**Water**	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
ES2434907008	**Rosehill/Shallow**	**CZ4e_MW02_W**		**25 Oct 2024**	**Water**	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
ES2434907009	**Rosehill/Shallow**	**CZ4e_MW03_W**		**25 Oct 2024**	**Water**	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Statistics																									
Number of Results						**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<5**	**<5**	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<5**	**<5**	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**2.5**	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Median Concentration *						**2.5**	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *						**2.5**	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						PAH														
	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	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	2	2	2	4	2	0.004	2	2	2	2	1	1	1	1	0.5	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													0.4		0.2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<2	<2	<2	<4	<2	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0

Statistics

Statistics	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
Number of Results	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<4**	**<2**	**<0.004**	**<2**	**<2**	**<2**	**<2**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<4**	**<2**	**<0.004**	**<2**	**<2**	**<2**	**<2**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1**	**1**	**2**	**1**	**0.002**	**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Median Concentration *	**1**	**1**	**1**	**2**	**1**	**0.002**	**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**	**1**	**1**	**2**	**1**	**0.002**	**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T17. Groundwater Analytical Results – Rosehill Shallow Aquifer Criteria (October 2024 GME)

								TPH								Phenols				
	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
	μg/L	μg/L	μg/L	μg/L	μg/L	mg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	mg/L	μg/L	μg/L	μg/L	μg/L	μg/L
EQL	1	1	1	1	1	0.0005	0.5	20	50	100	50	50	2	2	0.01	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	1.4			2																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	-	<2	<2	<2	<2	<2
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	-	<2	<2	<2	<2	<2

Statistics

	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1		1	1	1	1	1
Median Concentration *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1	0.005	1	1	1	1	1
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
95% UCL (Student's-t) *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1		1	1	1	1	1
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

							PCBs	Explosives												
	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	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	4	2	2	10	4	2	1	0.002	4	4	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					22	400														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters					11	400														

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<4	<2	<2	-	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<4	<2	<2	-	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
Number of Results	**3**	**3**	**3**	**1**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<4**	**<2**	**<2**	**<10**	**<4**	**<2**	**<1**	**<0.002**	**<4**	**<4**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<4**	**<2**	**<2**	**<10**	**<4**	**<2**	**<1**	**<0.002**	**<4**	**<4**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2**	**1**	**1**		**2**	**1**	**0.5**	**0.001**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**2**	**1**	**1**	**5**	**2**	**1**	**0.5**	**0.001**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2**	**1**	**1**		**2**	**1**	**0.5**	**0.001**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Organochlorine Pesticides																			
	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.008											0.009	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters								0.004											0.009	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

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	Organophosphorous Pesticides												Pesticides							
	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
	µg/L	µg/L	µg/L	µg/L	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	mg/L	mg/L
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	2	2	0.5	0.01	0.01	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	-	-	-	-	-
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	-	-	-	-	-

Statistics

Statistics	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25					
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25					
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T17. Groundwater Analytical Results – Rosehill Shallow Aquifer Criteria (October 2024 GME)

	Herbicides										Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					F
	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	0.01	10	10	10	10	10	10	2	0.01	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%													0.13						220	
PFAS NEMP 2020 Interim Marine 99%													0.00023						19	
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	2,4-DB	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	<0.02	0.01	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	-	-	-	-	-	-	-	-	<2	-	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	-	-	-	-	-	-	-	-	<2	-	0.03	0.03	<0.01	0.03	<0.1	<0.02	0.03	<0.02	<0.01	<0.05

Statistics

Statistics	2,4-DB	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**3**	**1**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<0.01**	**<10**	**<10**	**<10**	**<10**	**<10**	**<10**	**<2**	**<0.01**	**<0.02**	**0.01**	**<0.01**	**0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.03**	**0.01**	**ND**	**0.01**	**ND**	**ND**	**0.03**	**ND**	**ND**	**ND**
Maximum Concentration	**<10**	**<0.01**	**<10**	**<10**	**<10**	**<10**	**<10**	**<10**	**<2**	**<0.01**	**0.03**	**0.03**	**<0.01**	**0.03**	**<0.1**	**<0.02**	**0.03**	**<0.02**	**<0.01**	**<0.05**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.03**	**0.03**	**ND**	**0.03**	**ND**	**ND**	**0.03**	**ND**	**ND**	**ND**
Average Concentration *									**1**		**0.017**	**0.015**	**0.005**	**0.015**	**0.05**	**0.01**	**0.017**	**0.01**	**0.005**	**0.025**
Median Concentration *	**5**	**0.005**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**0.005**	**0.01**	**0.01**	**0.005**	**0.01**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**
Standard Deviation *									**0**		**0.012**	**0.013**	**0**	**0.013**	**0**	**0**	**0.012**	**0**	**0**	**0**
95% UCL (Student's-t) *									**1**		**0.0361**	**0.0373**	**0.005**	**0.0373**	**0.05**	**0.01**	**0.0361**	**0.01**	**0.005**	**0.025**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**67**	**0**	**67**	**0**	**0**	**33**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**67**	**33**	**100**	**33**	**100**	**100**	**67**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T17. Groundwater Analytical Results – Rosehill Shallow Aquifer Criteria (October 2024 GME)

						luorotelomer Sulfonic Acids			PFAS Totals	Nitroaromatics			Other	Phthalates						Solvents					
						6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						0.05	0.05	0.05	0.01	2	2	2	2	10	2	2	2	2	2	50	50	50	5	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Interim Marine 95%																									
PFAS NEMP 2020 Interim Marine 99%																									
SMW WTP-RH-Shallow-Marine - Trigger Values (Epic, 2024d)																									
ANZECC 2000 SE Aust - Estuaries																									
NEPM 2013 Table 1C GILs, Marine Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434766012	Rosehill/Shallow	SMW_WTP_BH13_W		22 Oct 2024	Water	<0.05	<0.05	<0.05	0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
ES2434907008	Rosehill/Shallow	CZ4e_MW02_W		25 Oct 2024	Water	<0.05	<0.05	<0.05	<0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
ES2434907009	Rosehill/Shallow	CZ4e_MW03_W		25 Oct 2024	Water	<0.05	<0.05	<0.05	0.09	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50

Statistics

Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.05	<0.05	<0.05	0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
Minimum Detect	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.05	<0.05	<0.05	0.09	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
Maximum Detect	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.025	0.025	0.025	0.035	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
Median Concentration *	0.025	0.025	0.025	0.01	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
Standard Deviation *	0	0	0	0.048	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.025	0.025	0.025	0.115	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
% of Detects	0	0	0	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

	Amino Aliphatics			Physico-Chemical & Major Ions																			
	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L
EQL	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01	0.01	0.01	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)						6.3			18,633														
ANZECC 2000 SE Aust - Estuaries						7-8.5																	
NEPM 2013 Table 1C GILs, Marine Waters																							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<2	<2	<2	282	6.28	6.40	22,800	4.2	18,100	8,160	1,140	<1	<1	128	128	747	404	4,310	17	256	258	0.38	3,530

Statistics

Statistics	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Minimum Concentration	**<2**	**<2**	**<2**	**282**	**6.28**	**6.4**	**22,800**	**4.2**	**18,100**	**8,160**	**1,140**	**<1**	**<1**	**128**	**128**	**747**	**404**	**4,310**	**17**	**256**	**258**	**0.38**	**3,530**
Minimum Detect	**ND**	**ND**	**ND**	**282**	**6.28**	**6.4**	**22,800**	**4.2**	**18,100**	**8,160**	**1,140**	**ND**	**ND**	**128**	**128**	**747**	**404**	**4,310**	**17**	**256**	**258**	**0.38**	**3,530**
Maximum Concentration	**<2**	**<2**	**<2**	**282**	**6.28**	**6.4**	**22,800**	**4.2**	**18,100**	**8,160**	**1,140**	**<1**	**<1**	**128**	**128**	**747**	**404**	**4,310**	**17**	**256**	**258**	**0.38**	**3,530**
Maximum Detect	**ND**	**ND**	**ND**	**282**	**6.28**	**6.4**	**22,800**	**4.2**	**18,100**	**8,160**	**1,140**	**ND**	**ND**	**128**	**128**	**747**	**404**	**4,310**	**17**	**256**	**258**	**0.38**	**3,530**
Average Concentration *																							
Median Concentration *	**1**	**1**	**1**	**282**	**6.28**	**6.4**	**22,800**	**4.2**	**18,100**	**8,160**	**1,140**	**0.5**	**0.5**	**128**	**128**	**747**	**404**	**4,310**	**17**	**256**	**258**	**0.38**	**3,530**
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Amino Aromatics		Anilines						Nutrients								Metals						
	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
EQL	2	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01	1	0.1	0.01	0.01	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.91										5.5	0.0044	0.027		1.3
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											2.4												
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)									3.12					3.8	0.75			3					288
ANZECC 2000 SE Aust - Estuaries														0.3		0.005							
NEPM 2013 Table 1C GILs, Marine Waters																			0.7	0.0044	0.027		1.3

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<2	<4	<4	<4	<2	<2	<2	<2	0.29	0.6	0.36	0.03	0.39	1.0	0.07	<0.01	<0.01	<1	<0.1	<0.01	<0.01	<1	66

Statistics

Statistics	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Minimum Concentration	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.29**	**0.6**	**0.36**	**0.03**	**0.39**	**1**	**0.07**	**<0.01**	**<0.01**	**<1**	**<0.1**	**<0.01**	**<0.01**	**<1**	**66**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.29**	**0.6**	**0.36**	**0.03**	**0.39**	**1**	**0.07**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**66**
Maximum Concentration	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.29**	**0.6**	**0.36**	**0.03**	**0.39**	**1**	**0.07**	**<0.01**	**<0.01**	**<1**	**<0.1**	**<0.01**	**<0.01**	**<1**	**66**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.29**	**0.6**	**0.36**	**0.03**	**0.39**	**1**	**0.07**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**66**
Average Concentration *																							
Median Concentration *	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**0.29**	**0.6**	**0.36**	**0.03**	**0.39**	**1**	**0.07**	**0.005**	**0.005**	**0.5**	**0.05**	**0.005**	**0.005**	**0.5**	**66**
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

							BTEX									TRH							
	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene
	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.05	1	0.001	0.1	1	5	1	2	2	2	2	2	1	5	1	20	20	100	100	100	100	100	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		4.4		0.4	70	8	700	180	80				70	70									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)			0.49		5	154																	
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters		4.4		0.1	7	15	500						50	50									

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	0.76	<1	0.170	<0.1	7	9	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5

Statistics

	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	0.76	<1	0.17	<0.1	7	9	<1	<2	<2	<2	<2	<2	<1	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
Minimum Detect	0.76	ND	0.17	ND	7	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	0.76	<1	0.17	<0.1	7	9	<1	<2	<2	<2	<2	<2	<1	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5
Maximum Detect	0.76	ND	0.17	ND	7	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																							
Median Concentration *	0.76	0.5	0.17	0.05	7	9	0.5	1	1	1	1	1	0.5	2.5	0.5	10	10	50	50	50	50	50	2.5
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	100	0	100	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	0	100	0	100	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	MAH								Halogenated Hydrocarbons														
	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	5	5	5	5	5	5	5	5	50	50	5	50	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		30													270	400	1,900		700				1,900
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																	1,900						

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																							
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

	Chlorinated Hydrocarbons																						
	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	5	5	5	5	5	5	50	5	50	5	5	5	2	10	2	5	5	5	5	50	5	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	900	1,100				240			770								330	70			100		80
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																							20

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2

Statistics

Statistics	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<2**	**<10**	**<2**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<2**	**<10**	**<2**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *																							
Median Concentration *	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**1**	**5**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**1**
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

epic
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	Halogenated Benzenes									VOCs				SVOCs									
	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	2	2	2	5	5	5	5	0.5	2	5	5	5	2	2	2	2	2	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							55	0.1	2			80											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

Statistics

Statistics	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran
Number of Results	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<5**	**<5**	**<5**	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<5**	**<5**	**<5**	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *																							
Median Concentration *	**1**	**1**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Hexachloropropene	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	PAH Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	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	2	2	2	2	4	2	0.004	2	2	2	2	1	1	1	1	0.5	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														0.4		0.2						1.4	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water

Sample Code	Hexachloropropene	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene
ES2434907005	<2	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Statistics

Statistics	Hexachloropropene	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																							
Median Concentration *	1	1	1	1	2	1	0.002	1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

						TPH					Phenols												PCBs
	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	PCBs (Sum of total)
	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	0.0005	0.5	20	50	100	50	50	2	2	2	2	2	2	2	4	2	2	4	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		2																			22	400	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																					11	400	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type																							
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<4	<2	<1

Statistics

Statistics	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol	PCBs (Sum of total)
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<4	<2	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<4	<2	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																							
Median Concentration *	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1	1	1	1	1	1	2	1	1	2	1	0.5
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Explosives				Organochlorine Pesticides																		
	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone
	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.002	4	4	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																					0.008		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																					0.004		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																							
Median Concentration *	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion
					Organophosphorous Pesticides												
	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.009								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Estuaries																	
NEPM 2013 Table 1C GILs, Marine Waters									0.009								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																	
Median Concentration *	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *																	
95% UCL (Student's-t) *																	
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

						Pesticides			Herbicides	Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals
	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	Pronamide	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	2	2	2	0.5	2	2	0.5	2	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%												0.13						220					
PFAS NEMP 2020 Interim Marine 99%												0.00023						19					
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters																							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water

Sample	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	Pronamide	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
ES2434907005	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<2	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01

Statistics

Statistics	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	Pronamide	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<2	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<2	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																							
Median Concentration *	0.25	1	1	1	0.25	1	1	0.25	1	0.01	0.005	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
Standard Deviation *																							
95% UCL (Student's-t) *																							
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T18. Groundwater Analytical Results – Rosehill Deep Aquifer Criteria (October 2024 GME)

	Nitroaromatics			Other	Phthalates						Solvents					
	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	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	2	2	2	2	10	2	2	2	2	2	50	50	50	5	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-RH-Deep-Marine - Trigger Values (Epic, 2024d)																
ANZECC 2000 SE Aust - Estuaries																
NEPM 2013 Table 1C GILs, Marine Waters																

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
ES2434907005	Rosehill/Deep	SMW_ENV145_W		23 Oct 2024	Water	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50

Statistics

Statistics	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
Number of Results	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																
Median Concentration *	1	1	1	1	5	1	1	1	1	1	25	25	25	2.5	1	25
Standard Deviation *																
95% UCL (Student's-t) *																
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Amino Aliphatics			Physico-Chemical & Major Ions							
						N-nitrosodiethylamine (µg/L)	N-nitrosodi-n-propylamine (µg/L)	N-Nitrosomethylethylamine (µg/L)	Redox Potential (Lab) (mV)	pH Redox (-)	pH (Lab) (-)	Electrical Conductivity (Lab) (µS/cm)	Dissolved Oxygen (mg/L)	TDS (mg/L)	Chloride (mg/L)	Sulfate as SO4 - Turbidimetric (filtered) (mg/L)
EQL						2	2	2	0.1	0.01	0.01	1	0.1	10	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Interim Marine 95%																
PFAS NEMP 2020 Interim Marine 99%																
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)											5.4			24,180		
ANZECC 2000 SE Aust - Estuaries											7-8.5					
NEPM 2013 Table 1C GILs, Marine Waters																
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	-	<5	-	-	-	-	-	-	-	-	-
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	<2	<2	<2	-	-	-	-	-	-	-	-
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<2	<2	<2	200	6.18	6.46	525	4.6	311	35	80
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<2	<2	<2	34.2	6.14	6.27	1,170	4.6	739	161	206
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<2	<2	<2	131	7.03	7.11	1,470	5.0	850	201	12
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<2	<2	<2	261	6.55	6.83	26,600	2.9	20,800	9,250	1,810

Sample Code	Physico-Chemical & Major Ions											
	Alkalinity (Hydroxide) as CaCO3 (mg/L)	Carbonate as CaCO3 (mg/L)	Bicarbonate as CaCO3 (mg/L)	Alkalinity (total) as CaCO3 (mg/L)	Calcium (filtered) (mg/L)	Magnesium (filtered) (mg/L)	Sodium (filtered) (mg/L)	Potassium (filtered) (mg/L)	Anions Total (meq/L)	Cations Total (meq/L)	Ionic Balance (%)	Hardness as CaCO3 (filtered) (mg/L)
EQL	1	1	1	1	1	1	1	1	0.01	0.01	0.01	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												
364372-1	-	-	-	-	-	-	-	-	-	-	-	-
ES2434174001	-	-	-	-	-	-	-	-	-	-	-	-
ES2434174003	<1	<1	138	138	11	17	75	12	5.41	5.52	0.98	97
ES2434766006	<1	<1	209	209	12	29	214	28	13.0	13.0	0.01	149
ES2434766007	<1	<1	606	606	116	52	182	16	18.0	18.4	1.00	504
ES2434907006	<1	<1	448	448	399	876	5,360	27	308	326	2.88	4,600

Sample Code	Amino Aromatics				Anilines						Nutrients						
	1-naphthylamine (µg/L)	2-naphthylamine (µg/L)	Diphenylamine (µg/L)	N-Nitrosodiphenyl & Diphenylamine (µg/L)	2-nitroaniline (µg/L)	3-nitroaniline (µg/L)	4-chloroaniline (µg/L)	4-nitroaniline (µg/L)	2-methyl-5-nitroaniline (µg/L)	Aniline (µg/L)	Ammonia as N (mg/L)	Kjeldahl Nitrogen Total (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite + Nitrate as N (mg/L)	Nitrogen (Total) (mg/L)	Total Phosphorus as P (Organic Phosphate as P) (mg/L)
EQL	2	5	5	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											0.91						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													2.4				
PFAS NEMP 2020 Interim Marine 95%																	
PFAS NEMP 2020 Interim Marine 99%																	
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)											5.91					7.05	0.13
ANZECC 2000 SE Aust - Estuaries																0.3	
NEPM 2013 Table 1C GILs, Marine Waters																	
364372-1	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-
ES2434174001	<2	-	-	<4	<4	<4	<2	<2	<2	<2	-	-	-	-	-	-	-
ES2434174003	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.03	0.2	0.10	<0.01	0.10	0.3	0.07
ES2434766006	<2	-	-	<4	<4	<4	<2	<2	<2	<2	3.86	5.4	<0.01	<0.01	<0.01	5.4	0.15
ES2434766007	<2	-	-	<4	<4	<4	<2	<2	<2	<2	6.96	8.0	0.09	<0.01	0.09	8.1	0.46
ES2434907006	<2	-	-	<4	<4	<4	<2	<2	<2	<2	0.75	0.9	<0.01	<0.01	<0.01	0.9	0.02

Statistics

Statistics	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)
Number of Results	5	6	5	4	4	4	4	4	4	4	4
Number of Detects	0	0	0	4	4	4	4	4	4	4	4
Minimum Concentration	<2	<2	<2	34.2	6.14	6.27	525	2.9	311	35	12
Minimum Detect	ND	ND	ND	34.2	6.14	6.27	525	2.9	311	35	12
Maximum Concentration	<2	<5	<2	261	7.03	7.11	26,600	5	20,800	9,250	1,810
Maximum Detect	ND	ND	ND	261	7.03	7.11	26,600	5	20,800	9,250	1,810
Average Concentration *	1	1.2	1	157	6.5	6.7	7,441	4.3	5,675	2,412	527
Median Concentration *	1	1	1	165.5	6.365	6.645	1,320	4.6	794.5	181	143
Standard Deviation *	0	0.61	0	97	0.41	0.38	12,779	0.94	10,086	4,559	859
95% UCL (Student's-t) *	1	1.754	1	271.1	6.962	7.109	22,478	5.376	17,543	7,777	1,538
% of Detects	0	0	0	100	100	100	100	100	100	100	100
% of Non-Detects	100	100	100	0	0	0	0	0	0	0	0

Statistics	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)
Number of Results	4	4	4	4	4	4	4	4	4	4	4	4
Number of Detects	0	0	4	4	4	4	4	4	4	4	4	4
Minimum Concentration	<1	<1	138	138	11	17	75	12	5.41	5.52	0.01	97
Minimum Detect	ND	ND	138	138	11	17	75	12	5.41	5.52	0.01	97
Maximum Concentration	<1	<1	606	606	399	876	5,360	28	308	326	2.88	4,600
Maximum Detect	ND	ND	606	606	399	876	5,360	28	308	326	2.88	4,600
Average Concentration *	0.5	0.5	350	350	134	244	1,458	21	86	91	1.2	1,338
Median Concentration *	0.5	0.5	328.5	328.5	64	40.5	198	21.5	15.5	15.7	0.99	326.5
Standard Deviation *	0	0	216	216	183	422	2,602	8	148	157	1.2	2,183
95% UCL (Student's-t) *	0.5	0.5	604.4	604.4	349.9	740	4,520	30.13	260.3	275.4	2.63	3,906
% of Detects	0	0	100	100	100	100	100	100	100	100	100	100
% of Non-Detects	100	100	0	0	0	0	0	0	0	0	0	0

Statistics	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)
Number of Results	6	1	1	5	6	6	6	6	6	6	4	4	4	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	4	4	2	0	2	4	4
Minimum Concentration	<2	<5	<5	<4	<4	<4	<2	<2	<2	<2	0.03	0.2	<0.01	<0.01	<0.01	0.3	0.02
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0.2	0.09	ND	0.09	0.3	0.02
Maximum Concentration	<5	<5	<5	<4	<5	<5	<5	<5	<5	<5	6.96	8	0.1	<0.01	0.1	8.1	0.46
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.96	8	0.1	ND	0.1	8.1	0.46
Average Concentration *	1.2			2	2.1	2.1	1.2	1.2	1.2	1.2	2.9	3.6	0.05	0.005	0.05	3.7	0.18
Median Concentration *	1	2.5	2.5	2	2	2	1	1	1	1	2.305	3.15	0.0475	0.005	0.0475	3.15	0.11
Standard Deviation *	0.61			0	0.2	0.2	0.61	0.61	0.61	0.61	3.2	3.7	0.052	0	0.052	3.7	0.2
95% UCL (Student's-t) *	1.754			2	2.251	2.251	1.754	1.754	1.754	1.754	6.637	7.999	0.111	0.005	0.111	8.059	0.407
% of Detects	0	0	0	0	0	0	0	0	0	0	100	100	50	0	50	100	100
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	0	0	50	100	50	0	0

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

							Metals															
						Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)	Zinc (filtered)
						mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	mg/L	µg/L
EQL						0.01	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1	0.001	0.05	1	0.05	0.05	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									5.5	0.0044	0.027	0.027		1.3		4.4		0.4	70			8
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																						
PFAS NEMP 2020 Interim Marine 95%																						
PFAS NEMP 2020 Interim Marine 99%																						
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)								6	1					3			1.502			0.13	0.13	25
ANZECC 2000 SE Aust - Estuaries						0.005														0.03	0.03	
NEPM 2013 Table 1C GILs, Marine Waters									0.7	0.0044	0.027	0.027		1.3		4.4		0.1	7			15
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																	
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	-	<0.01	<1	<0.1	<0.005	<0.005	-	<1	40	<0.01	<1	0.086	<0.05	1	<0.05	-	3
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	-	-	<1	<0.1	<0.01	-	<0.01	<1	42	-	<1	-	<0.1	1	-	-	<5
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<0.01	-	<1	<0.1	<0.01	-	<0.01	<1	39	-	<1	-	<0.1	1	-	-	7
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<0.01	<0.01	13	<0.1	<0.01	-	<0.01	<1	<1	49.5	<1	1.01	<0.1	6	-	<1	<5
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<0.01	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	17.8	<1	0.716	<0.1	<1	-	<1	<5
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<0.01	<0.10#1	<10#1	<1.0#1	<0.01	-	<0.01	<10#1	153	10.6	<10#1	1.18	<0.1	<10#1	-	-	<50#1
Statistics																						
Number of Results						**4**	**4**	**6**	**6**	**6**	**1**	**5**	**6**	**6**	**4**	**6**	**4**	**6**	**6**	**1**	**2**	**6**
Number of Detects						**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**3**	**0**	**4**	**0**	**4**	**0**	**0**	**2**
Minimum Concentration						**<0.01**	**<0.01**	**<1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**<1**	**<0.01**	**<1**	**0.086**	**<0.05**	**1**	**<0.05**	**<1**	**3**
Minimum Detect						**ND**	**ND**	**13**	**ND**	**ND**	**ND**	**ND**	**ND**	**39**	**10.6**	**ND**	**0.086**	**ND**	**1**	**ND**	**ND**	**3**
Maximum Concentration						**<0.01**	**<0.1**	**13**	**<1**	**<0.01**	**<0.005**	**<0.01**	**<10**	**153**	**49.5**	**<10**	**1.18**	**<0.1**	**<10**	**<0.05**	**<1**	**<50**
Maximum Detect						**ND**	**ND**	**13**	**ND**	**ND**	**ND**	**ND**	**ND**	**153**	**49.5**	**ND**	**1.18**	**ND**	**6**	**ND**	**ND**	**7**
Average Concentration *						**0.005**	**0.016**	**3.3**	**0.12**	**0.0046**		**0.005**	**1.2**	**46**	**19**	**1.2**	**0.75**	**0.046**	**2.4**		**0.5**	**7.1**
Median Concentration *						**0.005**	**0.005**	**0.5**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**39.5**	**14.2**	**0.5**	**0.863**	**0.05**	**1**	**0.025**	**0.5**	**2.75**
Standard Deviation *						**0**	**0.022**	**5.1**	**0.18**	**0.001**		**0**	**1.8**	**56**	**21**	**1.8**	**0.48**	**0.01**	**2.4**		**0**	**9**
95% UCL (Student's-t) *						**0.005**	**0.0427**	**7.501**	**0.276**	**0.00542**		**0.005**	**2.761**	**91.92**	**44.55**	**2.761**	**1.314**	**0.0542**	**4.405**		**0.5**	**14.45**
% of Detects						**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**67**	**75**	**0**	**100**	**0**	**67**	**0**	**0**	**33**
% of Non-Detects						**100**	**100**	**83**	**100**	**100**	**100**	**100**	**100**	**33**	**25**	**100**	**0**	**100**	**33**	**100**	**100**	**67**

	BTEX									TRH							MAH						
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	2	1	2	0.1	1	1	10	10	50	50	100	100	50	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	700	180	80				70	70											30				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters	500						50	50															
Sample Code																							
364372-1	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
ES2434174001	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434174003	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434766006	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434766007	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
ES2434907006	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
Statistics																							
Number of Results	**6**	**6**	**6**	**6**	**6**	**5**	**6**	**6**	**5**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<1**	**<2**	**<1**	**<2**	**<0.1**	**<1**	**<1**	**<10**	**<10**	**<50**	**<50**	**<100**	**<100**	**<50**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**0.92**	**0.92**	**1**	**0.92**	**1**	**0.42**	**2.2**	**0.5**	**9.2**	**9.2**	**46**	**46**	**50**	**50**	**46**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
Median Concentration *	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *	**0**	**0.2**	**0.2**	**0**	**0.2**	**0**	**0.18**	**0.82**	**0**	**2**	**2**	**10**	**10**	**0**	**0**	**10**	**0.82**	**0.82**	**0.82**	**0.82**	**0.82**	**0.82**	**0.82**
95% UCL (Student's-t) *	**0.5**	**1.085**	**1.085**	**1**	**1.085**	**1**	**0.576**	**2.838**	**0.5**	**10.85**	**10.85**	**54.23**	**54.23**	**50**	**50**	**54.23**	**2.838**	**2.838**	**2.838**	**2.838**	**2.838**	**2.838**	**2.838**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water

			Halogenated Hydrocarbons					Chlorinated Hydrocarbons												
	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	10	10	5	10	1	1	1	1	1	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									270	400	1,900		700				1,900	900	1,100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters											1,900									
364372-1	<1	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2434174001	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434174003	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434766006	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434766007	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434907006	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Statistics																				
Number of Results	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<10	<10	<5	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2	2.2	2.2	22	22	2.5	22	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Median Concentration *	2.5	2.5	2.5	25	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0.82	0.82	0.82	8.2	8.2	0	8.2	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
95% UCL (Student's-t) *	2.838	2.838	2.838	28.38	28.38	2.5	28.38	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838	2.838
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

	Chlorinated Hydrocarbons																			
	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	1	10	1	10	1	1	1	1	5	2	1	1	1	1	10	4
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)				240			770								330	70			100	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				
364372-1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<5	<2	<1	<1	<1	<1	<10	<4
ES2434174001	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434174003	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434766006	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434766007	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
ES2434907006	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-
Statistics																				
Number of Results	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<5	<2	<1	<1	<1	<1	<10	<4
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<4
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		2.2	2.2	2.2	2.2	22	2.2	22	2.2	2.2	2.2	0.92	4.6	1	2.2	2.2	2.2	2.2	22	
Median Concentration *	0.5	2.5	2.5	2.5	2.5	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2
Standard Deviation *		0.82	0.82	0.82	0.82	8.2	0.82	8.2	0.82	0.82	0.82	0.2	1	0	0.82	0.82	0.82	0.82	8.2	
95% UCL (Student's-t) *		2.838	2.838	2.838	2.838	28.38	2.838	28.38	2.838	2.838	2.838	1.085	5.423	1	2.838	2.838	2.838	2.838	28.38	
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

						Halogenated Benzenes											VOCs				SVOCs																								
						1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino)fluorene	3,3-Dichlorobenzidine	4-(dimethylamino)azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						1	1	1	1	1	1	1	1	1	0.2	2	5	5	2	2	2	2	2	2	2	2	2	5	2	2	5	2	2	10	2	2	2	4	2	0.0002	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							80							55	0.1	2			80																										
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																																													
PFAS NEMP 2020 Interim Marine 95%																																													
PFAS NEMP 2020 Interim Marine 99%																																													
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																																													
ANZECC 2000 SE Aust - Estuaries																																													
NEPM 2013 Table 1C GILs, Marine Waters							20																																						
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																																								
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	-	-	<2	<5	<2	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	-	<5	<0.0002	<2	<2	<2	<2	<2
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	-	-	<2	<2	<2	<2
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2
Statistics																																													
Number of Results						6	6	6	6	6	6	6	6	6	6	6	5	5	6	6	6	5	6	6	6	5	6	1	6	6	1	6	6	1	6	6	6	5	6	4	1	6	6	6	6
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<10	<2	<2	<2	<4	<2	<0.0002	<2	<2	<2	<2	<2
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<5	<2	<2	<5	<5	<5	<2	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	<4	<5	<0.004	<2	<2	<2	<2	<2
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *						2.2	0.92	0.92	0.92	0.92	2.2	2.2	2.2	2.2	0.22	1	2.5	2.5	2.2	1.2	1	1	1.2	1.2	1.2	1	1.2		1.2	1.2		1.2	1		1.7	1.2	1.2	2	1.2	0.0015		1	1	1	1
Median Concentration *						2.5	1	1	1	1	2.5	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	2.5	1	1	2.5	1	1	5	1	1	1	2	1	0.002	1	1	1	1	1
Standard Deviation *						0.82	0.2	0.2	0.2	0.2	0.82	0.82	0.82	0.82	0.061	0	0	0	0.61	0.61	0	0	0.61	0.61	0.61	0	0.61		0.61	0.61		0.61	0		1.6	0.61	0.61	0	0.61	0.00095		0	0	0	0
95% UCL (Student's-t) *						2.838	1.085	1.085	1.085	1.085	2.838	2.838	2.838	2.838	0.275	1	2.5	2.5	2.754	1.754	1	1	1.754	1.754	1.754	1	1.754		1.754	1.754		1.754	1		3.01	1.754	1.754	2	1.754	0.00264		1	1	1	1
% of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

						PAH																		
						Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)
						µg/L	µg/L	µg/L	µg/L	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	µg/L	mg/L
EQL						0.1	0.1	0.1	0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.4		0.2						1.4			2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																								
PFAS NEMP 2020 Interim Marine 95%																								
PFAS NEMP 2020 Interim Marine 99%																								
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																								
ANZECC 2000 SE Aust - Estuaries																								
NEPM 2013 Table 1C GILs, Marine Waters																								
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																			
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
Statistics																								
Number of Results						6	6	6	6	6	5	6	5	6	6	6	6	6	6	6	1	5	5	1
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	<0.0005	<0.5	<0.0001
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.0005	<0.5	<0.0001
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *						0.42	0.42	0.42	0.42	0.22	0.5	0.42	0.5	0.42	0.42	0.42	0.42	0.42	0.42	0.42		0.00025	0.25	
Median Concentration *						0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.00025	0.25	0.00005
Standard Deviation *						0.18	0.18	0.18	0.18	0.082	0	0.18	0	0.18	0.18	0.18	0.18	0.18	0.18	0.18		0	0	
95% UCL (Student's-t) *						0.576	0.576	0.576	0.576	0.284	0.5	0.576	0.5	0.576	0.576	0.576	0.576	0.576	0.576	0.576		0.00025	0.25	
% of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

	TPH					Phenols															
	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	50	100	50	50	2	2	0.02	2	0.01	2	2	2	2	2	4	2	20	20	2	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters																					
Sample Code																					
364372-1	<10	<50	<100	<100	<50	<2	<2	<0.02	<2	-	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	-
ES2434174001	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434174003	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434766006	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434766007	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	-	-	<2	<10
ES2434907006	<20	<50	<100	<50	<50	-	<2	-	<2	-	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-
Statistics																					
Number of Results	6	6	6	6	6	1	6	1	6	4	6	6	6	6	6	6	6	1	1	6	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<50	<100	<50	<50	<2	<2	<0.02	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	<20	<20	<2	<10
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<20	<50	<100	<100	<50	<2	<2	<0.02	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	<10
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	9.2	25	50	29	25		1		1	0.005	1	1	1	1	1	2	1			1.2	5
Median Concentration *	10	25	50	25	25	1	1	0.01	1	0.005	1	1	1	1	1	2	1	10	10	1	5
Standard Deviation *	2	0	0	10	0		0		0	0	0	0	0	0	0	0	0			0.61	0
95% UCL (Student's-t) *	10.85	25	50	37.56	25		1		1	0.005	1	1	1	1	1	2	1			1.754	5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

			PCBs								Explosives				
	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L
EQL	4	2	2	2	2	2	2	2	2	1	0.002	0.005	4	4	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	22	400													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species															
PFAS NEMP 2020 Interim Marine 95%															
PFAS NEMP 2020 Interim Marine 99%															
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)															
ANZECC 2000 SE Aust - Estuaries															
NEPM 2013 Table 1C GILs, Marine Waters	11	400													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	<10	<2	<2	<2	<2	<2	<2	<2	<2	-	-	<0.005	-	<5	<5
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2

Statistics	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene
Number of Results	6	6	1	1	1	1	1	1	1	5	5	1	5	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<4	<2	<2	<2	<2	<2	<2	<2	<2	<1	<0.002	<0.005	<4	<4	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<10	<2	<2	<2	<2	<2	<2	<2	<2	<1	<0.002	<0.005	<4	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	1								0.5	0.001		2	2.1	1.2
Median Concentration *	2	1	1	1	1	1	1	1	1	0.5	0.001	0.0025	2	2	1
Standard Deviation *	1.2	0								0	0		0	0.2	0.61
95% UCL (Student's-t) *	3.508	1								0.5	0.001		2	2.251	1.754
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

	Organochlorine Pesticides																		
	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.2	0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	0.008		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Interim Marine 95%																			
PFAS NEMP 2020 Interim Marine 99%																			
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																	0.004		

Sample Code	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone
364372-1	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2
ES2434174001	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434174003	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone
Number of Results	6	6	5	6	6	5	6	6	6	6	6	5	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.22	0.22	0.25	0.22	0.22	0.25	0.22	0.22	0.22	0.22	0.85	0.25	0.22	0.22	0.22	0.22	0.22	0.22	0.38
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0.061	0.061	0	0.061	0.061	0	0.061	0.061	0.061	0.061	0.37	0	0.061	0.061	0.061	0.061	0.061	0.061	0.31
95% UCL (Student's-t) *	0.275	0.275	0.25	0.275	0.275	0.25	0.275	0.275	0.275	0.275	1.152	0.25	0.275	0.275	0.275	0.275	0.275	0.275	0.627
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Organophosphorous Pesticides: Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	5	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														0.009									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																							
PFAS NEMP 2020 Interim Marine 95%																							
PFAS NEMP 2020 Interim Marine 99%																							
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																							
ANZECC 2000 SE Aust - Estuaries																							
NEPM 2013 Table 1C GILs, Marine Waters														0.009									
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5	<0.2
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5

Sample Code	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Pesticides: Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	mg/L
EQL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5	0.2	5	2	2	0.2	0.5	0.01	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters																					
364372-1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<5	-	<5	<0.2	-	-	-	-	-
ES2434174001	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01
ES2434174003	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01
ES2434766006	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01
ES2434766007	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01
ES2434907006	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-	-	-	-

Statistics

Statistics	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion
Number of Results	6	6	6	6	6	6	5	5	6	6	1	5	6	6	6	1	1	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<5	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.22	0.22	0.22	0.85	0.22	0.22	0.25	0.25	0.22	0.22		0.25	0.22	0.22	0.22			0.22
Median Concentration *	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.1	0.25	0.25	0.25	0.25	0.1	2.5	0.25
Standard Deviation *	0.061	0.061	0.061	0.37	0.061	0.061	0	0	0.061	0.061		0	0.061	0.061	0.061			0.061
95% UCL (Student's-t) *	0.275	0.275	0.275	1.152	0.275	0.275	0.25	0.25	0.275	0.275		0.25	0.275	0.275	0.275			0.275
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Statistics	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop
Number of Results	1	6	6	6	1	1	6	5	6	1	5	1	1	5	6	1	5	4	4	4	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.5	<0.2	<5	<2	<2	<0.2	<0.5	<0.01	<0.01	<0.01	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.5	<0.5	<0.5	<0.2	<0.2	<2	<2	<2	<0.2	<0.5	<0.2	<5	<2	<5	<0.2	<0.5	<0.01	<0.01	<0.01	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		0.22	0.22	0.22			0.85	1	0.85		0.25			1	1.2		0.25	0.005	0.005	0.005	0.005
Median Concentration *	0.1	0.25	0.25	0.25	0.1	0.1	1	1	1	0.1	0.25	0.1	2.5	1	1	0.1	0.25	0.005	0.005	0.005	0.005
Standard Deviation *		0.061	0.061	0.061			0.37	0	0.37		0			0	0.61		0	0	0	0	0
95% UCL (Student's-t) *		0.275	0.275	0.275			1.152	1	1.152		0.25			1	1.754		0.25	0.005	0.005	0.005	0.005
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T19. Groundwater Analytical Results – Clyde Zone 3 Shallow Aquifer Criteria (October 2024 GME)

Herbicides

	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr
	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	0.01	10	0.01	10	10	20	10	10	10	10	2	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters												

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	2,4,6-Trichlorophenoxy-acetic acid	2,4-DB	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	-	-	-	-	-	<20	-	-	-	-	-	-
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	<0.01	<10	<0.01	<10	<10	-	<10	<10	<10	<10	<2	<0.01
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	<0.01	<10	<0.01	<10	<10	-	<10	<10	<10	<10	<2	<0.01
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	<0.01	<10	<0.01	<10	<10	-	<10	<10	<10	<10	<2	<0.01
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	<0.01	<10	<0.01	<10	<10	-	<10	<10	<10	<10	<2	<0.01
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	<2	-

Statistics

Statistics	2,4,6-Trichlorophenoxy-acetic acid	2,4-DB	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr
Number of Results	4	4	4	4	4	1	4	4	4	4	5	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.01	<10	<0.01	<10	<10	<20	<10	<10	<10	<10	<2	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.01	<10	<0.01	<10	<10	<20	<10	<10	<10	<10	<2	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.005	5	0.005	5	5		5	5	5	5	1	0.005
Median Concentration *	0.005	5	0.005	5	5	10	5	5	5	5	1	0.005
Standard Deviation *	0	0	0	0	0		0	0	0	0	0	0
95% UCL (Student's-t) *	0.005	5	0.005	5	5		5	5	5	5	1	0.005
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100

Perfluoroalkyl Sulfonic Acids / Perfluoroalkyl Carboxylic Acid / Fluorotelomer Sulfonic Acids

	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)
	µg/L	µg/L	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	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Interim Marine 95%			0.13						220					
PFAS NEMP 2020 Interim Marine 99%			0.00023						19					
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)														
ANZECC 2000 SE Aust - Estuaries														
NEPM 2013 Table 1C GILs, Marine Waters														

Sample Code	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
364372-1	-	0.01	0.03	0.04	-	-	-	-	<0.01	-	<0.01	<0.02	-	-
ES2434174001	<0.02	0.01	0.03	0.04	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.04
ES2434174003	<0.02	0.01	0.02	0.03	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.03
ES2434766006	0.04	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.04
ES2434766007	0.11	0.01	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.12
ES2434907006	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01

Statistics	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
Number of Results	5	6	6	6	5	5	5	5	6	5	6	6	5	5
Number of Detects	2	4	3	4	0	0	0	0	0	0	0	0	0	4
Minimum Concentration	<0.02	0.01	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01
Minimum Detect	0.04	0.01	0.02	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03
Maximum Concentration	0.11	0.01	0.03	0.04	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.12
Maximum Detect	0.11	0.01	0.03	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12
Average Concentration *	0.036	0.0083	0.016	0.022	0.05	0.01	0.01	0.01	0.005	0.025	0.022	0.023	0.025	0.047
Median Concentration *	0.01	0.01	0.0125	0.02	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.04
Standard Deviation *	0.043	0.0026	0.012	0.017	0	0	0	0	0	0	0.0082	0.0061	0	0.043
95% UCL (Student's-t) *	0.0773	0.0105	0.026	0.0356	0.05	0.01	0.01	0.01	0.005	0.025	0.0284	0.0275	0.025	0.0882
% of Detects	40	67	50	67	0	0	0	0	0	0	0	0	0	80
% of Non-Detects	60	33	50	33	100	100	100	100	100	100	100	100	100	20

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	PFAS Totals		Nitroaromatics			Other		Phthalates							Solvents						
	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL	0.01	0.01	2	2	2	2	0.0002	10	2	50	2	2	2	2	50	50	50	5	0.001	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																					
PFAS NEMP 2020 Interim Marine 95%																					
PFAS NEMP 2020 Interim Marine 99%																					
SMW WTP-CZ3-Shallow-Marine - Trigger Values (Epic, 2024d)																					
ANZECC 2000 SE Aust - Estuaries																					
NEPM 2013 Table 1C GILs, Marine Waters																					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
364372-1	CZ3/Shallow	QC02	ES2434174003	17 Oct 2024	Water	0.03	0.04	-	-	<5	<5	<0.0002	-	<10	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-
ES2434174001	CZ3/Shallow	QC01	ES2434174003	17 Oct 2024	Water	-	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434174003	CZ3/Shallow	SMW_BH057_S		17 Oct 2024	Water	-	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766006	CZ3/Shallow	SMW_ENV010_W		21 Oct 2024	Water	-	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766007	CZ3/Shallow	SMW_ENV009_W		21 Oct 2024	Water	-	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907006	CZ3/Shallow	SMW_ENV039_W		23 Oct 2024	Water	-	-	<2	<2	<2	<2	-	<10	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50

Statistics

Statistics	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
Number of Results	1	1	5	5	6	6	1	5	6	1	6	6	6	6	5	5	5	5	1	6	5
Number of Detects	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	0.03	0.04	<2	<2	<2	<2	<0.0002	<10	<2	<50	<2	<2	<2	<2	<50	<50	<50	<5	<0.001	<2	<50
Minimum Detect	0.03	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	0.03	0.04	<2	<2	<5	<5	<0.0002	<10	<10	<50	<10	<10	<50	<50	<50	<50	<50	<5	<0.001	<5	<50
Maximum Detect	0.03	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *			1	1	1.2	1.2		5	1.7		1.7	1.7	5	5	25	25	25	2.5		1.2	25
Median Concentration *	0.03	0.04	1	1	1	1	0.0001	5	1	25	1	1	1	1	25	25	25	2.5	0.0005	1	25
Standard Deviation *			0	0	0.61	0.61		0	1.6		1.6	1.6	9.8	9.8	0	0	0	0		0.61	0
95% UCL (Student's-t) *			1	1	1.754	1.754		5	3.01		3.01	3.01	13.06	13.06	25	25	25	2.5		1.754	25
% of Detects	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

	Amino Aliphatics			Physico-Chemical & Major Ions																
	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)						5.8			5,363											
ANZECC 2000 SE Aust - Estuaries						7-8.5														
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<2	<2	<2	74.5	6.53	6.97	11,600	3.9	7,490	3,630	169	<1	<1	931	931	364	267	1,840	46	124
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<2	<2	<2	138	7.43	7.42	15,000	5.7	10,400	5,480	272	<1	<1	766	766	227	408	3,140	63	176

Statistics

Statistics	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Minimum Concentration	**<2**	**<2**	**<2**	**74.5**	**6.53**	**6.97**	**11,600**	**3.9**	**7,490**	**3,630**	**169**	**<1**	**<1**	**766**	**766**	**227**	**267**	**1,840**	**46**	**124**
Minimum Detect	**ND**	**ND**	**ND**	**74.5**	**6.53**	**6.97**	**11,600**	**3.9**	**7,490**	**3,630**	**169**	**ND**	**ND**	**766**	**766**	**227**	**267**	**1,840**	**46**	**124**
Maximum Concentration	**<2**	**<2**	**<2**	**138**	**7.43**	**7.42**	**15,000**	**5.7**	**10,400**	**5,480**	**272**	**<1**	**<1**	**931**	**931**	**364**	**408**	**3,140**	**63**	**176**
Maximum Detect	**ND**	**ND**	**ND**	**138**	**7.43**	**7.42**	**15,000**	**5.7**	**10,400**	**5,480**	**272**	**ND**	**ND**	**931**	**931**	**364**	**408**	**3,140**	**63**	**176**
Average Concentration *	**1**	**1**	**1**	**106**	**7**	**7.2**	**13,300**	**4.8**	**8,945**	**4,555**	**220**	**0.5**	**0.5**	**848**	**848**	**296**	**338**	**2,490**	**54**	**150**
Median Concentration *	**1**	**1**	**1**	**106.25**	**6.98**	**7.195**	**13,300**	**4.8**	**8,945**	**4,555**	**220.5**	**0.5**	**0.5**	**848.5**	**848.5**	**295.5**	**337.5**	**2,490**	**54.5**	**150**
Standard Deviation *	**0**	**0**	**0**	**45**	**0.64**	**0.32**	**2,404**	**1.3**	**2,058**	**1,308**	**73**	**0**	**0**	**117**	**117**	**97**	**100**	**919**	**12**	**37**
95% UCL (Student's-t) *	**1**	**1**	**1**	**306.7**	**9.821**	**8.616**	**24,033**	**10.48**	**18,132**	**10,395**	**545.7**	**0.5**	**0.5**	**1,369**	**1,369**	**728**	**782.6**	**6,594**	**108.2**	**314.2**
% of Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

									Amino Aromatics		Anilines						Nutrients								
						Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
						meq/L	%	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						0.01	0.01	1	2	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																	0.91								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			2.4						
PFAS NEMP 2020 Interim Marine 95%																									
PFAS NEMP 2020 Interim Marine 99%																									
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																	1.677					2.06	0.05	0.03	
ANZECC 2000 SE Aust - Estuaries																						0.3		0.005	
NEPM 2013 Table 1C GILs, Marine Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	121	1.29	2,010	<2	<4	<4	<4	<2	<2	<2	<2	2.67	2.7	<0.01	<0.01	<0.01	2.7	0.08	<0.01	-
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	183	2.10	2,250	<2	<4	<4	<4	<2	<2	<2	<2	0.63	1.0	<0.01	<0.01	<0.01	1.0	0.11	<0.01	<0.01

Statistics

Statistic	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Aluminium (filtered)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**
Number of Detects	**2**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**2**	**2**	**0**	**0**
Minimum Concentration	**121**	**1.29**	**2,010**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.63**	**1**	**<0.01**	**<0.01**	**<0.01**	**1**	**0.08**	**<0.01**	**<0.01**
Minimum Detect	**121**	**1.29**	**2,010**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.63**	**1**	**ND**	**ND**	**ND**	**1**	**0.08**	**ND**	**ND**
Maximum Concentration	**183**	**2.1**	**2,250**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**2.67**	**2.7**	**<0.01**	**<0.01**	**<0.01**	**2.7**	**0.11**	**<0.01**	**<0.01**
Maximum Detect	**183**	**2.1**	**2,250**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.67**	**2.7**	**ND**	**ND**	**ND**	**2.7**	**0.11**	**ND**	**ND**
Average Concentration *	**152**	**1.7**	**2,130**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1.6**	**1.8**	**0.005**	**0.005**	**0.005**	**1.8**	**0.095**	**0.005**	
Median Concentration *	**152**	**1.695**	**2,130**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1.65**	**1.85**	**0.005**	**0.005**	**0.005**	**1.85**	**0.095**	**0.005**	**0.005**
Standard Deviation *	**44**	**0.57**	**170**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.4**	**1.2**	**0**	**0**	**0**	**1.2**	**0.021**	**0**	
95% UCL (Student's-t) *	**347.7**	**4.252**	**2,888**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**8.09**	**7.217**	**0.005**	**0.005**	**0.005**	**7.217**	**0.19**	**0.005**	
% of Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**100**	**100**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**0**	**0**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

	Metals													BTEX						
	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.1	0.01	0.01	1	1	0.05	1	0.001	0.1	1	1	5	1	2	2	2	2	2	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		5.5	0.0044	0.027		1.3		4.4		0.4	70		8	700	180	80				70
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)	7				5	87			0.496		73	0.05	266							
ANZECC 2000 SE Aust - Estuaries												0.03								
NEPM 2013 Table 1C GILs, Marine Waters		0.7	0.0044	0.027		1.3		4.4		0.1	7		15	500						50

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<1	<0.1	<0.01	<0.01	<1	<1	-	<1	-	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	2	<0.1	<0.01	<0.01	<1	<1	0.22	<1	0.481	<0.1	<1	<1	<5	<1	<2	<2	<2	<2	<2	<1.0

Statistics

Statistics	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**1**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<0.1**	**<0.01**	**<0.01**	**<1**	**<1**	**0.22**	**<1**	**0.481**	**<0.1**	**<1**	**<1**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Minimum Detect	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.22**	**ND**	**0.481**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**2**	**<0.1**	**<0.01**	**<0.01**	**<1**	**<1**	**0.22**	**<1**	**0.481**	**<0.1**	**<1**	**<1**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**
Maximum Detect	**2**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.22**	**ND**	**0.481**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1.2**	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**		**0.5**		**0.05**	**0.5**		**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Median Concentration *	**1.25**	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**0.22**	**0.5**	**0.481**	**0.05**	**0.5**	**0.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
Standard Deviation *	**1.1**	**0**	**0**	**0**	**0**	**0**		**0**		**0**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**5.985**	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**		**0.5**		**0.05**	**0.5**		**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
% of Detects	**50**	**0**	**0**	**0**	**0**	**0**	**100**	**0**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**50**	**100**	**100**	**100**	**100**	**100**	**0**	**100**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

			TRH							MAH									Haloge	
	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	1	20	20	100	100	100	100	100	5	5	5	5	5	5	5	5	5	5	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												30								
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters	50																			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50

Statistics

Statistics	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<1**	**<20**	**<20**	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Median Concentration *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2.5**	**0.5**	**10**	**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

	nated Hydrocarbons			Chlorinated Hydrocarbons																
	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	50	5	50	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					270	400	1,900		700				1,900	900	1,100				240	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters							1,900													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

																Halogenated Benz					
	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	50	5	50	5	5	5	2	10	2	5	5	5	5	50	5	2	2	2	2	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		770								330	70			100		80				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																20				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5

Statistics

Statistics	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<5	<50	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
Median Concentration *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	25	2.5	25	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	enes					VOCs				SVOCs										
	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	5	5	0.5	2	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			55	0.1	2			80												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

Statistics

Statistics	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	1	1	1	1
Median Concentration *	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	1	1	1	1
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1	1	1	1	1	1	1	1	1	1	1	1
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						PAH														
	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	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	2	2	2	4	2	0.004	2	2	2	2	1	1	1	1	0.5	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													0.4		0.2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<2	<2	<2	<4	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<2	<2	<2	<4	<2	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0

Statistics

Statistics	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
Number of Results	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<4**	**<2**	**<0.004**	**<2**	**<2**	**<2**	**<2**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<4**	**<2**	**<0.004**	**<2**	**<2**	**<2**	**<2**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1**	**1**	**2**	**1**		**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Median Concentration *	**1**	**1**	**1**	**2**	**1**	**0.002**	**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**	**1**	**1**	**2**	**1**		**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

								TPH												Phenols
	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	0.0005	0.5	20	50	100	50	50	2	2	0.01	2	2	2	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	1.4			2																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2

Statistics

Statistics	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1	0.005	1	1	1	1	1
Median Concentration *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1	0.005	1	1	1	1	1
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.5	0.5	0.5	0.5	0.5	0.00025	0.25	10	25	50	25	25	1	1	0.005	1	1	1	1	1
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

							PCBs	Explosives												
	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	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	4	2	2	10	4	2	1	0.002	4	4	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					22	400														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters					11	400														

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<4	<2	<2	<10	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2	1	1	5	2	1	0.5	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	2	1	1	5	2	1	0.5	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2	1	1	5	2	1	0.5	0.001	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Organochlorine Pesticides																			
	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.008											0.009	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters								0.004											0.009	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

	Organophosphorous Pesticides												Pesticides							
	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
	µg/L	µg/L	µg/L	µg/L	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	mg/L	mg/L
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	2	2	0.5	0.01	0.01	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01

Statistics

Statistics	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

						Herbicides										Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					F
						4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)
						µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						10	0.01	10	10	10	10	10	10	2	0.01	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																									
PFAS NEMP 2020 Interim Marine 95%																		0.13						220	
PFAS NEMP 2020 Interim Marine 99%																		0.00023						19	
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																									
ANZECC 2000 SE Aust - Estuaries																									
NEPM 2013 Table 1C GILs, Marine Waters																									
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																				
ES2434174004	**CZ3/Deep**	**SMW_BH057_W**		**17 Oct 2024**	**Water**	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05
ES2434766011	**CZ3/Deep**	**GALC-MW16_W**		**22 Oct 2024**	**Water**	<10	<0.01	<10	<10	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05

Statistics

Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<0.01**	**<10**	**<10**	**<10**	**<10**	**<10**	**<10**	**<2**	**<0.01**	**<0.02**	**<0.01**	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<10**	**<0.01**	**<10**	**<10**	**<10**	**<10**	**<10**	**<10**	**<2**	**<0.01**	**<0.02**	**<0.01**	**<0.01**	**<0.01**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**<0.01**	**<0.05**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**5**	**0.005**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**0.005**	**0.01**	**0.005**	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**
Median Concentration *	**5**	**0.005**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**0.005**	**0.01**	**0.005**	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**5**	**0.005**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**0.005**	**0.01**	**0.005**	**0.005**	**0.005**	**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T20. Groundwater Analytical Results – Clyde Zone 3 Deep Aquifer Criteria (October 2024 GME)

	Fluorotelomer Sulfonic Acids			PFAS Totals	Nitroaromatics			Other	Phthalates						Solvents					
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.05	0.05	0.05	0.01	2	2	2	2	10	2	2	2	2	2	50	50	50	5	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
SMW WTP-CZ3-Deep-Marine - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Estuaries																				
NEPM 2013 Table 1C GILs, Marine Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
ES2434174004	CZ3/Deep	SMW_BH057_W		17 Oct 2024	Water	<0.05	<0.05	<0.05	<0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
ES2434766011	CZ3/Deep	GALC-MW16_W		22 Oct 2024	Water	<0.05	<0.05	<0.05	<0.01	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50

Statistics

Statistics	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**<0.05**	**<0.05**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<2**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**<0.05**	**<0.05**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<2**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.025**	**0.025**	**0.025**	**0.005**	**1**	**1**	**1**	**1**	**5**	**1**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**1**	**25**
Median Concentration *	**0.025**	**0.025**	**0.025**	**0.005**	**1**	**1**	**1**	**1**	**5**	**1**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**1**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.025**	**0.025**	**0.025**	**0.005**	**1**	**1**	**1**	**1**	**5**	**1**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**1**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

	NA	Amino Aliphatics			Physico-Chemical & Major Ions									
	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
	µg/L	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	2	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Interim Marine 95%														
PFAS NEMP 2020 Interim Marine 99%														
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)							5.5			22,640				
ANZECC 2000 SE Aust - Estuaries							7-8.5							
NEPM 2013 Table 1C GILs, Marine Waters														

	Physico-Chemical & Major Ions										Amino Aromatics		
	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	0.01	0.01	0.01	1	2	5	5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water

Sample Code	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
364936-1	<2	-	<5	-	-	-	-	-	-	-	-	-	-	-
ES2434906004	-	<2	<2	<2	216	7.08	7.54	529	3.8	5,170	2,580	559	<1	<1
ES2434906005	-	<2	<2	<2	227	6.77	7.35	514	3.1	15,000	7,470	988	<1	<1
ES2434906007	-	<2	<2	<2	-	-	-	-	-	-	-	-	-	-
ES2434907004	-	<2	<2	<2	117	6.10	6.36	10,200	4.1	6,860	3,480	461	<1	<1

Sample Code	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine
364936-1	-	-	-	-	-	-	-	-	-	-	<5	<5	<5
ES2434906004	107	107	140	136	1,560	50	86.6	87.3	0.44	910	<2	-	-
ES2434906005	107	107	368	396	4,020	109	233	229	1.04	2,550	<2	-	-
ES2434906007	-	-	-	-	-	-	-	-	-	-	<2	-	-
ES2434907004	139	139	87	210	2,060	8	110	111	0.40	1,080	<2	-	-

Statistics

Statistics	Irgarol	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3
Number of Results	**1**	**4**	**5**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<2**	**117**	**6.1**	**6.36**	**514**	**3.1**	**5,170**	**2,580**	**461**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**117**	**6.1**	**6.36**	**514**	**3.1**	**5,170**	**2,580**	**461**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<5**	**<2**	**227**	**7.08**	**7.54**	**10,200**	**4.1**	**15,000**	**7,470**	**988**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**227**	**7.08**	**7.54**	**10,200**	**4.1**	**15,000**	**7,470**	**988**	**ND**	**ND**
Average Concentration *		**1**	**1.3**	**1**	**187**	**6.6**	**7.1**	**3,748**	**3.7**	**9,010**	**4,510**	**669**	**0.5**	**0.5**
Median Concentration *	**1**	**1**	**1**	**1**	**216**	**6.77**	**7.35**	**529**	**3.8**	**6,860**	**3,480**	**559**	**0.5**	**0.5**
Standard Deviation *		**0**	**0.67**	**0**	**61**	**0.5**	**0.63**	**5,588**	**0.51**	**5,256**	**2,603**	**280**	**0**	**0**
95% UCL (Student's-t) *		**1**	**1.94**	**1**	**288.8**	**7.494**	**8.151**	**13,168**	**4.532**	**17,871**	**8,898**	**1,142**	**0.5**	**0.5**
% of Detects	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**

Statistics	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine
Number of Results	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**5**	**1**	**1**
Number of Detects	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**0**	**0**	**0**
Minimum Concentration	**107**	**107**	**87**	**136**	**1,560**	**8**	**86.6**	**87.3**	**0.4**	**910**	**<2**	**<5**	**<5**
Minimum Detect	**107**	**107**	**87**	**136**	**1,560**	**8**	**86.6**	**87.3**	**0.4**	**910**	**ND**	**ND**	**ND**
Maximum Concentration	**139**	**139**	**368**	**396**	**4,020**	**109**	**233**	**229**	**1.04**	**2,550**	**<5**	**<5**	**<5**
Maximum Detect	**139**	**139**	**368**	**396**	**4,020**	**109**	**233**	**229**	**1.04**	**2,550**	**ND**	**ND**	**ND**
Average Concentration *	**118**	**118**	**198**	**247**	**2,547**	**56**	**143**	**142**	**0.63**	**1,513**	**1.3**		
Median Concentration *	**107**	**107**	**140**	**210**	**2,060**	**50**	**110**	**111**	**0.44**	**1,080**	**1**	**2.5**	**2.5**
Standard Deviation *	**18**	**18**	**149**	**134**	**1,300**	**51**	**79**	**76**	**0.36**	**902**	**0.67**		
95% UCL (Student's-t) *	**148.8**	**148.8**	**450**	**473.2**	**4,739**	**141.2**	**275.8**	**270.4**	**1.231**	**3,034**	**1.94**		
% of Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

	Anilines							Nutrients							
	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.91							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species										2.4					
PFAS NEMP 2020 Interim Marine 95%															
PFAS NEMP 2020 Interim Marine 99%															
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)								3.475					6.14	0.15	
ANZECC 2000 SE Aust - Estuaries													0.3		0.005
NEPM 2013 Table 1C GILs, Marine Waters															

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water

Sample Code	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)
364936-1	-	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-
ES2434906004	<4	<4	<4	<2	<2	<2	<2	5.54	6.5	<0.01	<0.01	<0.01	6.5	0.29	<0.01
ES2434906005	<4	<4	<4	<2	<2	<2	<2	2.80	3.5	<0.01	<0.01	<0.01	3.5	0.20	<0.01
ES2434906007	<4	<4	<4	<2	<2	<2	<2	-	-	-	-	-	-	-	-
ES2434907004	<4	<4	<4	<2	<2	<2	<2	0.10	0.4	<0.01	<0.01	<0.01	0.4	0.04	<0.01

	Metals											
	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)
	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L
EQL	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1	0.001	0.05
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)			5.5	0.0044	0.027	0.027		1.3		4.4		0.4
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Interim Marine 95%												
PFAS NEMP 2020 Interim Marine 99%												
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)		8						8			1.4	
ANZECC 2000 SE Aust - Estuaries												
NEPM 2013 Table 1C GILs, Marine Waters			0.7	0.0044	0.027	0.027		1.3		4.4		0.1

Sample Code	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)
364936-1	<0.01	7	<0.1	<0.005	<0.005	-	<1	<1	6.6	<1	0.36	<0.05
ES2434906004	<0.01	7	<0.1	<0.01	-	<0.01	<1	<1	4.77	<1	0.360	<0.1
ES2434906005	0.01	4	<0.1	<0.01	-	<0.01	<1	<1	14.6	<1	1.47	<0.1
ES2434906007	<0.01	7	<0.1	<0.01	-	<0.01	<1	<1	4.94	<1	0.365	<0.1
ES2434907004	<0.01	<1	<0.1	<0.01	-	<0.01	<1	12	1.52	1	0.122	<0.1

Statistics

Statistic	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)
Number of Results	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**3**	**3**	**0**
Minimum Concentration	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.1**	**0.4**	**<0.01**	**<0.01**	**<0.01**	**0.4**	**0.04**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.1**	**0.4**	**ND**	**ND**	**ND**	**0.4**	**0.04**	**ND**
Maximum Concentration	**<4**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**5.54**	**6.5**	**<0.01**	**<0.01**	**<0.01**	**6.5**	**0.29**	**<0.01**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**5.54**	**6.5**	**ND**	**ND**	**ND**	**6.5**	**0.29**	**ND**
Average Concentration *	**2**	**2.1**	**2.1**	**1.3**	**1.3**	**1.3**	**1.3**	**2.8**	**3.5**	**0.005**	**0.005**	**0.005**	**3.5**	**0.18**	**0.005**
Median Concentration *	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**2.8**	**3.5**	**0.005**	**0.005**	**0.005**	**3.5**	**0.2**	**0.005**
Standard Deviation *	**0**	**0.22**	**0.22**	**0.67**	**0.67**	**0.67**	**0.67**	**2.7**	**3.1**	**0**	**0**	**0**	**3.1**	**0.13**	**0**
95% UCL (Student's-t) *	**2**	**2.313**	**2.313**	**1.94**	**1.94**	**1.94**	**1.94**	**7.399**	**8.609**	**0.005**	**0.005**	**0.005**	**8.609**	**0.39**	**0.005**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**100**	**100**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**0**	**0**	**100**

Statistic	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)
Number of Results	**5**	**5**	**5**	**5**	**1**	**4**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**1**	**5**	**0**
Minimum Concentration	**0.01**	**<1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**<1**	**1.52**	**1**	**0.122**	**<0.05**
Minimum Detect	**0.01**	**4**	**ND**	**ND**	**ND**	**ND**	**ND**	**12**	**1.52**	**1**	**0.122**	**ND**
Maximum Concentration	**0.01**	**7**	**<0.1**	**<0.01**	**<0.005**	**<0.01**	**<1**	**12**	**14.6**	**1**	**1.47**	**<0.1**
Maximum Detect	**0.01**	**7**	**ND**	**ND**	**ND**	**ND**	**ND**	**12**	**14.6**	**1**	**1.47**	**ND**
Average Concentration *	**0.006**	**5.1**	**0.05**	**0.0045**		**0.005**	**0.5**	**2.8**	**6.5**	**0.6**	**0.54**	**0.045**
Median Concentration *	**0.005**	**7**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**0.5**	**4.94**	**0.5**	**0.36**	**0.05**
Standard Deviation *	**0.0022**	**2.9**	**0**	**0.0011**		**0**	**0**	**5.1**	**4.9**	**0.22**	**0.53**	**0.011**
95% UCL (Student's-t) *	**0.00813**	**7.847**	**0.05**	**0.00557**		**0.005**	**0.5**	**7.703**	**11.15**	**0.813**	**1.043**	**0.0557**
% of Detects	**20**	**80**	**0**	**0**	**0**	**0**	**0**	**20**	**100**	**20**	**100**	**0**
% of Non-Detects	**80**	**20**	**100**	**100**	**100**	**100**	**100**	**80**	**0**	**80**	**0**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

				BTEX									TRH							MAH							
	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.05	1	1	1	1	2	1	2	0.1	1	1	10	10	50	50	100	100	50	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	70		8	700	180	80				70	70											30					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)	20	0.15	85																								
ANZECC 2000 SE Aust - Estuaries		0.03																									
NEPM 2013 Table 1C GILs, Marine Waters	7		15	500						50	50																

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	1	<0.05	2	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	1	-	5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	1	-	5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	7	-	15	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5

Statistics

Statistics	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene
Number of Results	5	1	5	5	5	5	5	5	4	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	5	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	1	<0.05	2	<1	<1	<1	<2	<1	<2	<0.1	<1	<1	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	1	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	7	<0.05	15	<1	<2	<2	<2	<2	<2	<1	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect	7	ND	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.2		5.9	0.5	0.9	0.9	1	0.9	1	0.41	2.1	0.5	9	9	45	45	50	50	45	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Median Concentration *	1	0.025	5	0.5	1	1	1	1	1	0.5	2.5	0.5	10	10	50	50	50	50	50	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Standard Deviation *	2.7		5.3	0	0.22	0.22	0	0.22	0	0.2	0.89	0	2.2	2.2	11	11	0	0	11	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
95% UCL (Student's-t) *	4.758		10.93	0.5	1.113	1.113	1	1.113	1	0.602	2.953	0.5	11.13	11.13	55.66	55.66	50	50	55.66	2.953	2.953	2.953	2.953	2.953	2.953	2.953	2.953
% of Detects	100	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	0	100	20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

							Halogenated Hydrocarbons					Chlorinated Hydrocarbons																				
						tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	10	10	5	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	1	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													270	400	1,900		700				1,900	900	1,100					240			770	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																																
PFAS NEMP 2020 Interim Marine 95%																																
PFAS NEMP 2020 Interim Marine 99%																																
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																																
ANZECC 2000 SE Aust - Estuaries																																
NEPM 2013 Table 1C GILs, Marine Waters															1,900																	
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																											
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<1	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50

Statistics

	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane
Number of Results	**5**	**5**	**5**	**5**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<10**	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<10**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<50**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<1**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.1**	**2.1**	**21**	**21**	**2.5**	**21**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**		**2.1**	**2.1**	**2.1**	**2.1**	**21**	**2.1**	**21**
Median Concentration *	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**0.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**
Standard Deviation *	**0.89**	**0.89**	**8.9**	**8.9**	**0**	**8.9**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**		**0.89**	**0.89**	**0.89**	**0.89**	**8.9**	**0.89**	**8.9**
95% UCL (Student's-t) *	**2.953**	**2.953**	**29.53**	**29.53**	**2.5**	**29.53**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**		**2.953**	**2.953**	**2.953**	**2.953**	**29.53**	**2.953**	**29.53**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

epic
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												Halogenated Benzenes												VOCs			
	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	5	2	1	1	1	1	10	4	1	1	1	1	1	1	1	1	1	0.2	2	5	5	2	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							330	70			100			80							55	0.1	2			80	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters														20													

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<1	<1	<1	<1	<5	<2	<1	<1	<1	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	-	-	<2	<5
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<2

Statistics

Statistics	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine
Number of Results	5	5	5	5	5	5	5	5	5	5	5	1	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<5	<2	<1	<1	<1	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2	<2	<5	<5	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<4	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5	<2	<5	<5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.1	2.1	2.1	0.9	4.5	1	2.1	2.1	2.1	2.1	21		2.1	0.9	0.9	0.9	0.9	2.1	2.1	2.1	2.1	0.22	1	2.5	2.5	2.2	1.3
Median Concentration *	2.5	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2	2.5	1	1	1	1	2.5	2.5	2.5	2.5	0.25	1	2.5	2.5	2.5	1
Standard Deviation *	0.89	0.89	0.89	0.22	1.1	0	0.89	0.89	0.89	0.89	8.9		0.89	0.22	0.22	0.22	0.22	0.89	0.89	0.89	0.89	0.067	0	0	0	0.67	0.67
95% UCL (Student's-t) *	2.953	2.953	2.953	1.113	5.566	1	2.953	2.953	2.953	2.953	29.53		2.953	1.113	1.113	1.113	1.113	2.953	2.953	2.953	2.953	0.284	1	2.5	2.5	2.84	1.94
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	SVOCs																										
						2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						2	2	2	2	2	2	2	5	2	2	5	2	2	10	2	2	2	4	2	0.0002	2	2	2	2	2	0.1	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																																
PFAS NEMP 2020 Interim Marine 95%																																
PFAS NEMP 2020 Interim Marine 99%																																
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																																
ANZECC 2000 SE Aust - Estuaries																																
NEPM 2013 Table 1C GILs, Marine Waters																																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																											
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<2	-	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	-	<5	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2	<1.0	<1.0
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2	<1.0	<1.0
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2	<1.0	<1.0
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2	<0.004	-	<2	<2	<2	<2	<1.0	<1.0
Statistics																																
Number of Results						5	4	5	5	5	4	5	1	5	5	1	5	5	1	5	5	5	4	5	5	1	5	5	5	5	5	5
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<10	<2	<2	<2	<4	<2	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<2	<2	<5	<5	<5	<2	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	<4	<5	<0.004	<2	<2	<2	<2	<2	<1	<1
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *						1	1	1.3	1.3	1.3	1	1.3		1.3	1.3		1.3	1		1.8	1.3	1.3	2	1.3	0.0016		1	1	1	1	0.41	0.41
Median Concentration *						1	1	1	1	1	1	1	2.5	1	1	2.5	1	1	5	1	1	1	2	1	0.002	1	1	1	1	1	0.5	0.5
Standard Deviation *						0	0	0.67	0.67	0.67	0	0.67		0.67	0.67		0.67	0		1.8	0.67	0.67	0	0.67	0.00085		0	0	0	0	0.2	0.2
95% UCL (Student's-t) *						1	1	1.94	1.94	1.94	1	1.94		1.94	1.94		1.94	1		3.505	1.94	1.94	2	1.94	0.00243		1	1	1	1	0.602	0.602
% of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

	PAH																	TPH									
	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D
	µg/L	µg/L	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	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L
EQL	0.1	0.1	0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50	50	2	2	0.02	2	0.0005
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	0.4		0.2						1.4			2															
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																											

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	<2	<2	<0.02	<2	<0.0005
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	<2	-	<2	-
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	<2	-	<2	-
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	<2	-	<2	-
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	<2	-	<2	-

Statistics

Statistics	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D
Number of Results	5	5	5	4	5	4	5	5	5	5	5	5	5	1	4	4	1	5	5	5	5	5	1	5	1	5	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	<0.0005	<0.5	<0.0001	<10	<50	<100	<50	<50	<2	<2	<0.02	<2	<0.0005
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.0005	<0.0005	<0.5	<0.0001	<20	<50	<100	<100	<50	<2	<2	<0.02	<2	<0.0005
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.41	0.41	0.21	0.5	0.41	0.5	0.41	0.41	0.41	0.41	0.41	0.41	0.41		0.00025	0.25		9	25	50	30	25		1		1	
Median Concentration *	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.00025	0.00025	0.25	0.00005	10	25	50	25	25	1	1	0.01	1	0.00025
Standard Deviation *	0.2	0.2	0.089	0	0.2	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2		0	0		2.2	0	0	11	0		0		0	
95% UCL (Student's-t) *	0.602	0.602	0.295	0.5	0.602	0.5	0.602	0.602	0.602	0.602	0.602	0.602	0.602		0.00025	0.25		11.13	25	50	40.66	25		1		1	
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE
	Phenols													PCBs								Explosives					
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	µg/L	µg/L	µg/L	µg/L
EQL	2	2	2	2	2	4	2	20	20	2	1	4	2	2	2	2	2	2	2	2	1	0.002	0.005	4	4	2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												22	400														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters												11	400														

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water

Sample Code	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE
364936-1	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	<1	<10	<2	<2	<2	<2	<2	<2	<2	<2	-	-	<0.005	-	<5	<5	<0.2
ES2434906004	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5
ES2434906005	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5
ES2434906007	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5
ES2434907004	<2	<2	<2	<2	<2	<4	<2	-	-	<2	-	<4	<2	-	-	-	-	-	-	-	<1	<0.002	-	<4	<4	<2	<0.5

Statistics

Statistics	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE
Number of Results	5	5	5	5	5	5	5	1	1	5	1	5	5	1	1	1	1	1	1	1	4	4	1	4	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<2	<2	<4	<2	<20	<20	<2	<1	<4	<2	<2	<2	<2	<2	<2	<2	<2	<1	<0.002	<0.005	<4	<4	<2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<2	<2	<4	<2	<20	<20	<5	<1	<10	<2	<2	<2	<2	<2	<2	<2	<2	<1	<0.002	<0.005	<4	<5	<5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1	1	1	1	1	2	1			1.3		2.6	1								0.5	0.001		2	2.1	1.3	0.22
Median Concentration *	1	1	1	1	1	2	1	10	10	1	0.5	2	1	1	1	1	1	1	1	1	0.5	0.001	0.0025	2	2	1	0.25
Standard Deviation *	0	0	0	0	0	0	0			0.67		1.3	0								0	0		0	0.22	0.67	0.067
95% UCL (Student's-t) *	1	1	1	1	1	2	1			1.94		3.879	1								0.5	0.001		2	2.313	1.94	0.284
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

	Organochlorine Pesticides																										
	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																0.008											0.009
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																											
ANZECC 2000 SE Aust - Estuaries																											
NEPM 2013 Table 1C GILs, Marine Waters																0.004											0.009

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

Statistics	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos
Number of Results	5	4	5	5	4	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.22	0.25	0.22	0.22	0.25	0.22	0.22	0.22	0.22	0.82	0.25	0.22	0.22	0.22	0.22	0.22	0.22	0.4	0.22	0.22	0.22	0.82	0.22	0.22	0.25	0.25	0.22
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0.067	0	0.067	0.067	0	0.067	0.067	0.067	0.067	0.4	0	0.067	0.067	0.067	0.067	0.067	0.067	0.34	0.067	0.067	0.067	0.4	0.067	0.067	0	0	0.067
95% UCL (Student's-t) *	0.284	0.25	0.284	0.284	0.25	0.284	0.284	0.284	0.284	1.204	0.25	0.284	0.284	0.284	0.284	0.284	0.284	0.72	0.284	0.284	0.284	1.204	0.284	0.284	0.25	0.25	0.284
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

						Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion
						Organophosphorous Pesticides													
						µg/L	µg/L	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						0.2	0.2	0.5	0.2	0.2	0.2	0.2	5	0.2	0.2	0.2	0.2	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Interim Marine 95%																			
PFAS NEMP 2020 Interim Marine 99%																			
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**														
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	-

	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	Metribuzin
	Organophosphorous Pesticides								Pesticides				
	µg/L	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	0.2	0.2	2	0.2	0.2	0.5	0.2	5	2	2	0.2	0.5	2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													
Sample Code													
364936-1	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<5	-	<5	<0.2	-	<2
ES2434906004	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-
ES2434906005	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-
ES2434906007	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-
ES2434907004	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	-

Statistics

Statistic	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion
Number of Results	5	1	4	5	5	5	1	1	5	1	5	5	5	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.22		0.25	0.22	0.22	0.22			0.22		0.22	0.22	0.22	
Median Concentration *	0.25	0.1	0.25	0.25	0.25	0.25	0.1	2.5	0.25	0.1	0.25	0.25	0.25	0.1
Standard Deviation *	0.067		0	0.067	0.067	0.067			0.067		0.067	0.067	0.067	
95% UCL (Student's-t) *	0.284		0.25	0.284	0.284	0.284			0.284		0.284	0.284	0.284	
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Statistic	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	Metribuzin
Number of Results	1	5	4	5	1	4	1	1	4	5	1	4	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<2	<0.2	<0.2	<0.5	<0.2	<5	<2	<2	<0.2	<0.5	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<2	<2	<2	<0.2	<0.5	<0.2	<5	<2	<5	<0.2	<0.5	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *		0.82	1	0.82		0.25			1	1.3		0.25	
Median Concentration *	0.1	1	1	1	0.1	0.25	0.1	2.5	1	1	0.1	0.25	1
Standard Deviation *		0.4	0	0.4		0			0	0.67		0	
95% UCL (Student's-t) *		1.204	1	1.204		0.25			1	1.94		0.25	
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

						Herbicides																										
						2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	2-Chlorophenoxyacetic acid	4-Chlorophenoxy acetic acid	Ametryn	Acifluorfen	Atrazine	Bentazone	Bromoxynil	Chloramben	Clopyralid	Cyanazine	Dicamba	Dinoseb	Fluroxypyr	Hexazinone	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Prometryn	Pronamide	Propazine	Simazine
						mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L
EQL						0.0005	0.0005	0.0005	0.0005	0.0005	0.5	0.0005	0.0005	0.002	0.002	0.002	1	0.5	1	0.5	2	0.5	1	1	2	0.5	0.5	0.5	0.002	2	0.002	0.002
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																																
PFAS NEMP 2020 Interim Marine 95%																																
PFAS NEMP 2020 Interim Marine 99%																																
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																																
ANZECC 2000 SE Aust - Estuaries																																
NEPM 2013 Table 1C GILs, Marine Waters																																
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																											
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<0.5	<2	<0.5	<1	<1	<2	<0.5	<0.5	<0.5	<0.002	-	<0.002	<0.002
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-
Statistics																																
Number of Results						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<0.5	<2	<0.5	<1	<1	<2	<0.5	<0.5	<0.5	<0.002	<2	<0.002	<0.002
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.0005	<0.002	<0.002	<0.002	<1	<0.5	<1	<0.5	<2	<0.5	<1	<1	<2	<0.5	<0.5	<0.5	<0.002	<2	<0.002	<0.002
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *																														1		
Median Concentration *						0.00025	0.00025	0.00025	0.00025	0.00025	0.25	0.00025	0.00025	0.001	0.001	0.001	0.5	0.25	0.5	0.25	1	0.25	0.5	0.5	1	0.25	0.25	0.25	0.001	1	0.001	0.001
Standard Deviation *																														0		
95% UCL (Student's-t) *																														1		
% of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

								Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids		
						Terbutryn	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)
						mg/L	mg/L	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						0.002	0.0005	0.01	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Interim Marine 95%										0.13						220			
PFAS NEMP 2020 Interim Marine 99%										0.00023						19			
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**														
364936-1	**CZ5a/Shallow**	**QC06**	**ES2434906004**	**24 Oct 2024**	**Water**	<0.002	<0.0005	<0.01	<0.01	0.01	0.01	-	-	-	-	0.01	-	<0.01	<0.02
ES2434906004	**CZ5a/Shallow**	**CZ5a_MW103**		**24 Oct 2024**	**Water**	-	-	<0.02	<0.01	0.01	0.01	<0.1	0.08	0.04	<0.02	0.01	<0.05	<0.05	<0.05
ES2434906005	**CZ5a/Shallow**	**CZ5a_MW104**		**24 Oct 2024**	**Water**	-	-	<0.02	<0.01	0.01	0.01	<0.1	0.05	0.03	<0.02	0.05	<0.05	<0.05	<0.05
ES2434906007	**CZ5a/Shallow**	**QC05**	**ES2434906004**	**25 Oct 2024**	**Water**	-	-	<0.02	<0.01	0.02	0.02	<0.1	0.09	0.04	<0.02	0.01	<0.05	<0.05	<0.05
ES2434907004	**CZ5a/Shallow**	**CZ5_MW09**		**23 Oct 2024**	**Water**	-	-	0.11	0.11	<0.01	0.11	<0.1	<0.02	0.05	<0.02	<0.01	<0.05	<0.05	<0.05

	Fluorotelomer Sulfonic Acids	PFAS Totals			Nitroaromatics			Organic	Other				
	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)	Phosalone	Bis(2-ethylhexyl) phthalate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	mg/L	µg/L
EQL	0.05	0.01	0.01	0.01	2	2	2	0.002	0.0005	2	0.001	0.0002	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Interim Marine 95%													
PFAS NEMP 2020 Interim Marine 99%													
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Estuaries													
NEPM 2013 Table 1C GILs, Marine Waters													
Sample Code													
364936-1	-	-	0.02	0.02	-	-	<5	<0.002	<0.0005	<5	<0.001	<0.0002	-
ES2434906004	<0.05	0.14	-	-	<2	<2	<2	-	-	<2	-	-	<10
ES2434906005	<0.05	0.14	-	-	<2	<2	<2	-	-	<2	-	-	<10
ES2434906007	<0.05	0.16	-	-	<2	<2	<2	-	-	<2	-	-	<10
ES2434907004	<0.05	0.27	-	-	<2	<2	<2	-	-	<2	-	-	<10

Statistics

Statistics	Terbutryn	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS
Number of Results	**1**	**1**	**5**	**5**	**5**	**5**	**4**	**4**	**4**	**4**	**5**	**4**	**5**	**5**
Number of Detects	**0**	**0**	**1**	**1**	**4**	**5**	**0**	**3**	**4**	**0**	**4**	**0**	**0**	**0**
Minimum Concentration	**<0.002**	**<0.0005**	**<0.01**	**<0.01**	**0.01**	**0.01**	**<0.1**	**<0.02**	**0.03**	**<0.02**	**0.01**	**<0.05**	**<0.01**	**<0.02**
Minimum Detect	**ND**	**ND**	**0.11**	**0.11**	**0.01**	**0.01**	**ND**	**0.05**	**0.03**	**ND**	**0.01**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.002**	**<0.0005**	**0.11**	**0.11**	**0.02**	**0.11**	**<0.1**	**0.09**	**0.05**	**<0.02**	**0.05**	**<0.05**	**<0.05**	**<0.05**
Maximum Detect	**ND**	**ND**	**0.11**	**0.11**	**0.02**	**0.11**	**ND**	**0.09**	**0.05**	**ND**	**0.05**	**ND**	**ND**	**ND**
Average Concentration *			**0.029**	**0.026**	**0.011**	**0.032**	**0.05**	**0.058**	**0.04**	**0.01**	**0.017**	**0.025**	**0.021**	**0.022**
Median Concentration *	**0.001**	**0.00025**	**0.01**	**0.005**	**0.01**	**0.01**	**0.05**	**0.065**	**0.04**	**0.01**	**0.01**	**0.025**	**0.025**	**0.025**
Standard Deviation *			**0.045**	**0.047**	**0.0055**	**0.044**	**0**	**0.036**	**0.0082**	**0**	**0.019**	**0**	**0.0089**	**0.0067**
95% UCL (Student's-t) *			**0.0722**	**0.0708**	**0.0162**	**0.0738**	**0.05**	**0.0998**	**0.0496**	**0.01**	**0.0347**	**0.025**	**0.0295**	**0.0284**
% of Detects	**0**	**0**	**20**	**20**	**80**	**100**	**0**	**75**	**100**	**0**	**80**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**80**	**80**	**20**	**0**	**100**	**25**	**0**	**100**	**20**	**100**	**100**	**100**

Statistics	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Terbutylazine	3,5-Dichlorobenzoic acid	Acetophenone	Actril (Ioxynil)	Phosalone	Bis(2-ethylhexyl) phthalate
Number of Results	**4**	**4**	**1**	**1**	**4**	**4**	**5**	**1**	**1**	**5**	**1**	**1**	**4**
Number of Detects	**0**	**4**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**0.14**	**0.02**	**0.02**	**<2**	**<2**	**<2**	**<0.002**	**<0.0005**	**<2**	**<0.001**	**<0.0002**	**<10**
Minimum Detect	**ND**	**0.14**	**0.02**	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**0.27**	**0.02**	**0.02**	**<2**	**<2**	**<5**	**<0.002**	**<0.0005**	**<5**	**<0.001**	**<0.0002**	**<10**
Maximum Detect	**ND**	**0.27**	**0.02**	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.025**	**0.18**			**1**	**1**	**1.3**			**1.3**			**5**
Median Concentration *	**0.025**	**0.15**	**0.02**	**0.02**	**1**	**1**	**1**	**0.001**	**0.00025**	**1**	**0.0005**	**0.0001**	**5**
Standard Deviation *	**0**	**0.062**			**0**	**0**	**0.67**			**0.67**			**0**
95% UCL (Student's-t) *	**0.025**	**0.251**			**1**	**1**	**1.94**			**1.94**			**5**
% of Detects	**0**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T21. Groundwater Analytical Results – Clyde Zone 5a Shallow Aquifer Criteria (October 2024 GME)

						Phthalates						Solvents						
						Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL						2	50	2	2	2	2	50	50	50	5	0.001	2	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
PFAS NEMP 2020 Interim Marine 95%																		
PFAS NEMP 2020 Interim Marine 99%																		
SMW WTP-CZ5a-Shallow-Marine - Trigger Values (Epic, 2024d)																		
ANZECC 2000 SE Aust - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
364936-1	CZ5a/Shallow	QC06	ES2434906004	24 Oct 2024	Water	<10	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-
ES2434906004	CZ5a/Shallow	CZ5a_MW103		24 Oct 2024	Water	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434906005	CZ5a/Shallow	CZ5a_MW104		24 Oct 2024	Water	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434906007	CZ5a/Shallow	QC05	ES2434906004	25 Oct 2024	Water	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434907004	CZ5a/Shallow	CZ5_MW09		23 Oct 2024	Water	<2	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50

Statistics

	Butyl benzyl phthalate	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
Number of Results	**5**	**1**	**5**	**5**	**5**	**5**	**4**	**4**	**4**	**4**	**1**	**5**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<50**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<2**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<10**	**<50**	**<10**	**<10**	**<50**	**<50**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1.8**		**1.8**	**1.8**	**5.8**	**5.8**	**25**	**25**	**25**	**2.5**		**1.3**	**25**
Median Concentration *	**1**	**25**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**0.0005**	**1**	**25**
Standard Deviation *	**1.8**		**1.8**	**1.8**	**11**	**11**	**0**	**0**	**0**	**0**		**0.67**	**0**
95% UCL (Student's-t) *	**3.505**		**3.505**	**3.505**	**16.03**	**16.03**	**25**	**25**	**25**	**2.5**		**1.94**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water

	Amino Aliphatics			Physico-Chemical & Major Ions							
	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)
	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L
EQL	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)									469		
ANZECC 2000 SE Aust - Lowland River						6.5-8					
NEPM 2013 Table 1C GILs, Fresh Waters											
Sample Code											
ES2434174007	<2	<2	<2	263	5.99	6.79	429	3.9	293	41	50
ES2434766001	<2	<2	<2	235	6.95	6.83	465	9.5	311	46	72
ES2434766002	<2	<2	<2	-	-	-	-	-	-	-	-
364941-1	-	<5	-	-	-	-	-	-	-	-	-
ES2434766003	<2	<2	<2	259	5.91	5.98	755	6.9	504	138	147
Statistics											
Number of Results	4	5	4	3	3	3	3	3	3	3	3
Number of Detects	0	0	0	3	3	3	3	3	3	3	3
Minimum Concentration	<2	<2	<2	235	5.91	5.98	429	3.9	293	41	50
Minimum Detect	ND	ND	ND	235	5.91	5.98	429	3.9	293	41	50
Maximum Concentration	<2	<5	<2	263	6.95	6.83	755	9.5	504	138	147
Maximum Detect	ND	ND	ND	263	6.95	6.83	755	9.5	504	138	147
Average Concentration *	1	1.3	1	252	6.3	6.5	550	6.8	369	75	90
Median Concentration *	1	1	1	259	5.99	6.79	465	6.9	311	46	72
Standard Deviation *	0	0.67	0	15	0.58	0.48	179	2.8	117	55	51
95% UCL (Student's-t) *	1	1.94	1	277.9	7.259	7.342	851	11.49	566.5	167.1	175.4
% of Detects	0	0	0	100	100	100	100	100	100	100	100
% of Non-Detects	100	100	100	0	0	0	0	0	0	0	0

	Physico-Chemical & Major Ions												Amino Aromatics				
	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	2-naphthylamine	Diphenylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	0.01	0.01	0.01	1	2	5	5	4	4
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters																	
Sample Code																	
ES2434174007	<1	<1	71	71	10	10	67	4	4.14	4.34	2.17	66	<2	-	-	<4	<4
ES2434766001	<1	<1	98	98	4	5	108	1	5.04	5.33	2.82	30	<2	-	-	<4	<4
ES2434766002	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-	<4	<4
364941-1	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	-	<5
ES2434766003	<1	<1	41	41	10	11	152	2	7.77	8.07	1.86	70	<2	-	-	<4	<4
Statistics																	
Number of Results	3	3	3	3	3	3	3	3	3	3	3	3	5	1	1	4	5
Number of Detects	0	0	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0
Minimum Concentration	<1	<1	41	41	4	5	67	1	4.14	4.34	1.86	30	<2	<5	<5	<4	<4
Minimum Detect	ND	ND	41	41	4	5	67	1	4.14	4.34	1.86	30	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	98	98	10	11	152	4	7.77	8.07	2.82	70	<5	<5	<5	<4	<5
Maximum Detect	ND	ND	98	98	10	11	152	4	7.77	8.07	2.82	70	ND	ND	ND	ND	ND
Average Concentration *	0.5	0.5	70	70	8	8.7	109	2.3	5.6	5.9	2.3	55	1.3			2	2.1
Median Concentration *	0.5	0.5	71	71	10	10	108	2	5.04	5.33	2.17	66	1	2.5	2.5	2	2
Standard Deviation *	0	0	29	29	3.5	3.2	43	1.5	1.9	1.9	0.49	22	0.67			0	0.22
95% UCL (Student's-t) *	0.5	0.5	118.1	118.1	13.84	14.09	180.7	4.909	8.837	9.171	3.109	92.47	1.94			2	2.313
% of Detects	0	0	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0
% of Non-Detects	100	100	0	0	0	0	0	0	0	0	0	0	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

	Anilines					Nutrients							
	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					250	0.9							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species								2.4					
PFAS NEMP 2020 Freshwater 95%													
PFAS NEMP 2020 Freshwater 99%													
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											11		
ANZECC 2000 SE Aust - Lowland River											0.5		0.02
NEPM 2013 Table 1C GILs, Fresh Waters					*8*								

	Metals														
	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)
	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	mg/L	mg/L
EQL	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1	0.001	0.05	1	0.05	0.05
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.055		0.2	0.001				1.4		3.4	1.9	0.6	11		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species															
PFAS NEMP 2020 Freshwater 95%															
PFAS NEMP 2020 Freshwater 99%															
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)								2							
ANZECC 2000 SE Aust - Lowland River														0.05	0.05
NEPM 2013 Table 1C GILs, Fresh Waters	*0.055 | 0.055*		*0.2*	*0.001*				*1.4*		*3.4*	*1.9*	*0.06*	*11*		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<4	<2	<2	<2	<2	0.01	0.5	7.09	0.14	7.23	7.7	0.05	0.02
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<4	<2	<2	<2	<2	<0.01	0.4	4.12	<0.01	4.12	4.5	0.06	<0.01
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<4	<2	<2	<2	<2	-	-	-	-	-	-	-	-
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<4	<2	<2	<2	<2	0.03	0.7	0.29	<0.01	0.29	1.0	0.50	<0.01

Sample Code	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)
ES2434174007	-	<1	<0.1	<0.01	-	<0.01	<1	*34*	-	<1	-	<0.1	3	-	-
ES2434766001	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*19*	<0.05	<1	<0.001	<0.1	<1	-	<1
ES2434766002	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*12*	<0.05	<1	<0.001	<0.1	<1	-	<1
364941-1	<0.01	<1	<0.1	<0.005	<0.005	-	<1	*12*	<0.01	<1	<0.005	<0.05	<1	<0.05	-
ES2434766003	0.02	<1	<0.1	<0.01	-	<0.01	<1	*3*	0.26	<1	0.019	<0.1	3	-	<1

Statistics

Statistics	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)
Number of Results	**5**	**5**	**5**	**5**	**5**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**3**	**1**	**3**	**3**	**3**	**1**
Minimum Concentration	**<4**	**<2**	**<2**	**<2**	**<2**	**0.01**	**0.4**	**0.29**	**<0.01**	**0.29**	**1**	**0.05**	**<0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**0.01**	**0.4**	**0.29**	**0.14**	**0.29**	**1**	**0.05**	**0.02**
Maximum Concentration	**<5**	**<5**	**<5**	**<5**	**<5**	**0.03**	**0.7**	**7.09**	**0.14**	**7.23**	**7.7**	**0.5**	**0.02**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**0.03**	**0.7**	**7.09**	**0.14**	**7.23**	**7.7**	**0.5**	**0.02**
Average Concentration *	**2.1**	**1.3**	**1.3**	**1.3**	**1.3**	**0.015**	**0.53**	**3.8**	**0.05**	**3.9**	**4.4**	**0.2**	**0.01**
Median Concentration *	**2**	**1**	**1**	**1**	**1**	**0.01**	**0.5**	**4.12**	**0.005**	**4.12**	**4.5**	**0.06**	**0.005**
Standard Deviation *	**0.22**	**0.67**	**0.67**	**0.67**	**0.67**	**0.013**	**0.15**	**3.4**	**0.078**	**3.5**	**3.4**	**0.26**	**0.0087**
95% UCL (Student's-t) *	**2.313**	**1.94**	**1.94**	**1.94**	**1.94**	**0.0373**	**0.791**	**9.58**	**0.181**	**9.74**	**10.05**	**0.637**	**0.0246**
% of Detects	**0**	**0**	**0**	**0**	**0**	**67**	**100**	**100**	**33**	**100**	**100**	**100**	**33**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**33**	**0**	**0**	**67**	**0**	**0**	**0**	**67**

Statistics	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Phosphorus (filtered)
Number of Results	**4**	**5**	**5**	**5**	**1**	**4**	**5**	**5**	**4**	**5**	**4**	**5**	**5**	**1**	**3**
Number of Detects	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**1**	**0**	**2**	**0**	**0**
Minimum Concentration	**<0.01**	**<1**	**<0.1**	**<0.005**	**<0.005**	**<0.01**	**<1**	**3**	**<0.01**	**<1**	**<0.001**	**<0.05**	**<1**	**<0.05**	**<1**
Minimum Detect	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**3**	**0.26**	**ND**	**0.019**	**ND**	**3**	**ND**	**ND**
Maximum Concentration	**0.02**	**<1**	**<0.1**	**<0.01**	**<0.005**	**<0.01**	**<1**	**34**	**0.26**	**<1**	**0.019**	**<0.1**	**3**	**<0.05**	**<1**
Maximum Detect	**0.02**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**34**	**0.26**	**ND**	**0.019**	**ND**	**3**	**ND**	**ND**
Average Concentration *	**0.0088**	**0.5**	**0.05**	**0.0045**		**0.005**	**0.5**	**16**	**0.079**	**0.5**	**0.0056**	**0.045**	**1.5**		**0.5**
Median Concentration *	**0.005**	**0.5**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**12**	**0.025**	**0.5**	**0.0015**	**0.05**	**0.5**	**0.025**	**0.5**
Standard Deviation *	**0.0075**	**0**	**0**	**0.0011**		**0**	**0**	**12**	**0.12**	**0**	**0.009**	**0.011**	**1.4**		**0**
95% UCL (Student's-t) *	**0.0176**	**0.5**	**0.05**	**0.00557**		**0.005**	**0.5**	**27.02**	**0.221**	**0.5**	**0.0162**	**0.0557**	**2.805**		**0.5**
% of Detects	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**25**	**0**	**25**	**0**	**40**	**0**	**0**
% of Non-Detects	**75**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**75**	**100**	**75**	**100**	**60**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

		BTEX									TRH							MAH									Haloge	
	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	1	1	2	1	2	0.1	1	1	10	10	50	50	100	100	50	1	1	1	1	1	1	1	1	1	1	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	8	950	180	80		350		16	16											30								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Freshwater 95%																												
PFAS NEMP 2020 Freshwater 99%																												
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)	30																											
ANZECC 2000 SE Aust - Lowland River																												
NEPM 2013 Table 1C GILs, Fresh Waters	*8*	*950*				*350*	*550*	*16*	*16*																			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	*22*	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	2	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	*14*	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50

Statistics

Statistics	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane
Number of Results	5	5	5	5	5	5	4	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of Detects	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	2	<1	<1	<1	<2	<1	<2	<0.1	<1	<1	<10	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
Minimum Detect	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	22	<1	<2	<2	<2	<2	<2	<1	<5	<1	<20	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50
Maximum Detect	22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	8.6	0.5	0.9	0.9	1	0.9	1	0.41	2.1	0.5	9	9	45	45	50	50	45	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	21
Median Concentration *	2.5	0.5	1	1	1	1	1	0.5	2.5	0.5	10	10	50	50	50	50	50	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25
Standard Deviation *	9	0	0.22	0.22	0	0.22	0	0.2	0.89	0	2.2	2.2	11	11	0	0	11	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	8.9
95% UCL (Student's-t) *	17.22	0.5	1.113	1.113	1	1.113	1	0.602	2.953	0.5	11.13	11.13	55.66	55.66	50	50	55.66	2.953	2.953	2.953	2.953	2.953	2.953	2.953	2.953	2.953	2.953	29.53
% of Detects	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	nated Hydrocarbons			Chlorinated Hydrocarbons																								
	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	10	5	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	1	10	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					270	400	6,500		700				1,900	900	1,100					240			770					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Freshwater 95%																												
PFAS NEMP 2020 Freshwater 99%																												
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																												
ANZECC 2000 SE Aust - Lowland River																												
NEPM 2013 Table 1C GILs, Fresh Waters							*6,500*																					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water

Sample Code	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene
ES2434174007	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2
ES2434766001	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2
ES2434766002	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2
364941-1	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
ES2434766003	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<2

Statistics

Statistics	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene
Number of Results	**5**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<5**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<1**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**21**	**2.5**	**21**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**		**2.1**	**2.1**	**2.1**	**2.1**	**21**	**2.1**	**21**	**2.1**	**2.1**	**2.1**	**0.9**
Median Concentration *	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**0.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**1**
Standard Deviation *	**8.9**	**0**	**8.9**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**	**0.89**		**0.89**	**0.89**	**0.89**	**0.89**	**8.9**	**0.89**	**8.9**	**0.89**	**0.89**	**0.89**	**0.22**
95% UCL (Student's-t) *	**29.53**	**2.5**	**29.53**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**	**2.953**		**2.953**	**2.953**	**2.953**	**2.953**	**29.53**	**2.953**	**29.53**	**2.953**	**2.953**	**2.953**	**1.113**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

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													Halogenated Benzenes							
						Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene
						µg/L	µg/L	µg/L	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						5	2	1	1	1	1	10	4	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							360	330	70			100		10	170	160	260	60		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters							*290*							*3*	*85*	*160*	*260*	*60*		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<5	<2	<1	<1	<1	<1	<10	<4	<1	<1	<1	<1	<1	<1	<1
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<10	<2	<5	<5	<5	<5	<50	-	<5	<2	<2	<2	<2	<5	<5
Statistics																				
Number of Results						**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<5**	**<2**	**<1**	**<1**	**<1**	**<1**	**<10**	**<4**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<10**	**<2**	**<5**	**<5**	**<5**	**<5**	**<50**	**<4**	**<5**	**<2**	**<2**	**<2**	**<2**	**<5**	**<5**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**4.5**	**1**	**2.1**	**2.1**	**2.1**	**2.1**	**21**		**2.1**	**0.9**	**0.9**	**0.9**	**0.9**	**2.1**	**2.1**
Median Concentration *						**5**	**1**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2**	**2.5**	**1**	**1**	**1**	**1**	**2.5**	**2.5**
Standard Deviation *						**1.1**	**0**	**0.89**	**0.89**	**0.89**	**0.89**	**8.9**		**0.89**	**0.22**	**0.22**	**0.22**	**0.22**	**0.89**	**0.89**
95% UCL (Student's-t) *						**5.566**	**1**	**2.953**	**2.953**	**2.953**	**2.953**	**29.53**		**2.953**	**1.113**	**1.113**	**1.113**	**1.113**	**2.953**	**2.953**
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

						VOCs								
	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether
	µg/L	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	1	0.2	2	5	5	2	2	2	2	2	2	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		55	0.1	2			80						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species													
PFAS NEMP 2020 Freshwater 95%													
PFAS NEMP 2020 Freshwater 99%													
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)													
ANZECC 2000 SE Aust - Lowland River													
NEPM 2013 Table 1C GILs, Fresh Waters													
Sample Code													
ES2434174007	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
ES2434766001	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
ES2434766002	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
364941-1	<1	<1	<0.2	<2	-	-	<2	<5	<2	-	<5	<5	<5
ES2434766003	<5	<5	<0.5	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2
Statistics													
Number of Results	**5**	**5**	**5**	**5**	**4**	**4**	**5**	**5**	**5**	**4**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<1**	**<0.2**	**<2**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<5**	**<5**	**<0.5**	**<2**	**<5**	**<5**	**<5**	**<5**	**<2**	**<2**	**<5**	**<5**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2.1**	**2.1**	**0.22**	**1**	**2.5**	**2.5**	**2.2**	**1.3**	**1**	**1**	**1.3**	**1.3**	**1.3**
Median Concentration *	**2.5**	**2.5**	**0.25**	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**
Standard Deviation *	**0.89**	**0.89**	**0.067**	**0**	**0**	**0**	**0.67**	**0.67**	**0**	**0**	**0.67**	**0.67**	**0.67**
95% UCL (Student's-t) *	**2.953**	**2.953**	**0.284**	**1**	**2.5**	**2.5**	**2.84**	**1.94**	**1**	**1**	**1.94**	**1.94**	**1.94**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

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						SVOCs													
						4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin
						µg/L	µg/L	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						2	2	5	2	2	5	2	2	10	2	2	2	4	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Freshwater 95%																			
PFAS NEMP 2020 Freshwater 99%																			
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**														
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	<5	<5	<5	<5	<5	<5	<2	<10	<10	<5	<5	-	<5
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	<2	<4	<2

						PAH													
						Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
						mg/L	µg/L	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						0.0002	2	2	2	2	2	0.1	0.1	0.1	0.1	0.1	1	0.1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)														0.4		0.2			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
PFAS NEMP 2020 Freshwater 95%																			
PFAS NEMP 2020 Freshwater 99%																			
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																			
ANZECC 2000 SE Aust - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**														
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<0.004	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	-	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	-	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<0.0002	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	-	-	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0

Statistics

Statistics	4-Nitroquinoline-N-oxide	Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Dibenzofuran	Hexachloropropene	Isosafrole	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Phenacetin
Number of Results	**4**	**5**	**1**	**5**	**5**	**1**	**5**	**5**	**1**	**5**	**5**	**5**	**4**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<5**	**<2**	**<2**	**<5**	**<2**	**<2**	**<10**	**<2**	**<2**	**<2**	**<4**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<2**	**<10**	**<10**	**<5**	**<5**	**<4**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1.3**		**1.3**	**1.3**		**1.3**	**1**		**1.8**	**1.3**	**1.3**	**2**	**1.3**
Median Concentration *	**1**	**1**	**2.5**	**1**	**1**	**2.5**	**1**	**1**	**5**	**1**	**1**	**1**	**2**	**1**
Standard Deviation *	**0**	**0.67**		**0.67**	**0.67**		**0.67**	**0**		**1.8**	**0.67**	**0.67**	**0**	**0.67**
95% UCL (Student's-t) *	**1**	**1.94**		**1.94**	**1.94**		**1.94**	**1**		**3.505**	**1.94**	**1.94**	**2**	**1.94**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Statistics	Benzo(b+j+k)fluoranthene	1-Chloronaphthalene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Number of Results	**2**	**1**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**4**	**5**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.0002**	**<2**	**<2**	**<2**	**<2**	**<2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<1**	**<0.1**	**<1**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.004**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<1**	**<1**	**<1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.001**		**1**	**1**	**1**	**1**	**0.41**	**0.41**	**0.41**	**0.41**	**0.21**	**0.5**	**0.41**	**0.5**
Median Concentration *	**0.00105**	**1**	**1**	**1**	**1**	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.5**	**0.5**	**0.5**
Standard Deviation *	**0.0013**		**0**	**0**	**0**	**0**	**0.2**	**0.2**	**0.2**	**0.2**	**0.089**	**0**	**0.2**	**0**
95% UCL (Student's-t) *	**0.00705**		**1**	**1**	**1**	**1**	**0.602**	**0.602**	**0.602**	**0.602**	**0.295**	**0.5**	**0.602**	**0.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			1.4			2					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species											
PFAS NEMP 2020 Freshwater 95%											
PFAS NEMP 2020 Freshwater 99%											
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)											
ANZECC 2000 SE Aust - Lowland River											
NEPM 2013 Table 1C GILs, Fresh Waters											

	TPH: C6-C9	TPH: C10-C14	TPH: C15-C28	TPH: C29-C36	TPH: C10-C36 (Sum of total)	Phenols: 2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	50	100	50	50	2	2	0.02	2	0.01	2	2	2	2	2	4	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)						20		0.045	20		160			490			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																	
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Freshwater 99%																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																	
ANZECC 2000 SE Aust - Lowland River																	
NEPM 2013 Table 1C GILs, Fresh Waters						*10*		*0.045*	*3*		*120*			*340*			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-

Sample Code	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol
ES2434174007	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2
ES2434766001	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2
ES2434766002	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2
364941-1	<10	<50	<100	<100	<50	<2	<2	<0.02	<2	-	<2	<2	<2	<2	<2	<4	<2
ES2434766003	<20	<50	<100	<50	<50	-	<2	-	<2	<0.01	<2	<2	<2	<2	<2	<4	<2

Statistics

Statistics	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	PAHs (Sum of positives)
Number of Results	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**1**	**4**	**4**	**1**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.0005**	**<0.5**	**<0.0001**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.41**	**0.41**	**0.41**	**0.41**	**0.41**	**0.41**	**0.41**		**0.00025**	**0.25**	
Median Concentration *	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.00025**	**0.00025**	**0.25**	**0.00005**
Standard Deviation *	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**		**0**	**0**	
95% UCL (Student's-t) *	**0.602**	**0.602**	**0.602**	**0.602**	**0.602**	**0.602**	**0.602**		**0.00025**	**0.25**	
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Statistics	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4-Dinitrophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol
Number of Results	**5**	**5**	**5**	**5**	**5**	**1**	**5**	**1**	**5**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<10**	**<50**	**<100**	**<50**	**<50**	**<2**	**<2**	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<20**	**<50**	**<100**	**<100**	**<50**	**<2**	**<2**	**<0.02**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**9**	**25**	**50**	**30**	**25**		**1**		**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**
Median Concentration *	**10**	**25**	**50**	**25**	**25**	**1**	**1**	**0.01**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**
Standard Deviation *	**2.2**	**0**	**0**	**11**	**0**		**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**11.13**	**25**	**50**	**40.66**	**25**		**1**		**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

							PCBs							
	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (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
EQL	20	20	2	10	4	2	2	2	2	2	2	2	2	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					10	320				0.6		0.03		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Freshwater 95%														
PFAS NEMP 2020 Freshwater 99%														
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)														
ANZECC 2000 SE Aust - Lowland River														
NEPM 2013 Table 1C GILs, Fresh Waters					*3.6*	*320*				*0.3*		*0.01*		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	-	-	<2	<10	<4	<2	-	-	-	-	-	-	-	<1
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	-	-	<2	<10	<4	<2	-	-	-	-	-	-	-	<1
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	-	-	<2	<10	<4	<2	-	-	-	-	-	-	-	<1
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<20	<20	<5	-	<10	<2	<2	<2	<2	<2	<2	<2	<2	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	-	-	<2	<10	<4	<2	-	-	-	-	-	-	-	<1

Statistics	4,6-Dinitro-2-methylphenol	4-Nitrophenol	4-chloro-3-methylphenol	Picloram	Pentachlorophenol	Phenol	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
Number of Results	1	1	5	4	5	5	1	1	1	1	1	1	1	4
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<20	<2	<10	<4	<2	<2	<2	<2	<2	<2	<2	<2	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<20	<20	<5	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *			1.3	5	2.6	1								0.5
Median Concentration *	10	10	1	5	2	1	1	1	1	1	1	1	1	0.5
Standard Deviation *			0.67	0	1.3	0								0
95% UCL (Student's-t) *			1.94	5	3.879	1								0.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100

	Explosives													
	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
	mg/L	mg/L	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	0.002	0.005	4	4	2	0.2	0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)			65		550						0.08			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Freshwater 95%														
PFAS NEMP 2020 Freshwater 99%														
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)														
ANZECC 2000 SE Aust - Lowland River														
NEPM 2013 Table 1C GILs, Fresh Waters											*0.03*			

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	<0.005	-	<5	<5	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<0.002	-	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
Number of Results	4	1	4	5	5	5	5	4	5	5	4	5	5	5
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.002	<0.005	<4	<4	<2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.002	<0.005	<4	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.001		2	2.1	1.3	0.22	0.22	0.25	0.22	0.22	0.25	0.22	0.22	0.22
Median Concentration *	0.001	0.0025	2	2	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation *	0		0	0.22	0.67	0.067	0.067	0	0.067	0.067	0	0.067	0.067	0.067
95% UCL (Student's-t) *	0.001		2	2.313	1.94	0.284	0.284	0.25	0.284	0.284	0.25	0.284	0.284	0.284
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

						Organochlorine Pesticides																											Organophosphorous P
						DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethyl methanesulfonate	Ethion
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	5	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.01						0.02			0.2	0.09			0.02				0.01				0.01		0.15			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																																	
PFAS NEMP 2020 Freshwater 95%																																	
PFAS NEMP 2020 Freshwater 99%																																	
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																																	
ANZECC 2000 SE Aust - Lowland River																																	
NEPM 2013 Table 1C GILs, Fresh Waters							*0.006*						*0.01*			*0.2*	*0.01*							*0.01*				*0.01*		*0.15*			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**																												
ES2434174007	**Parramatta/Shallow**	**SMW_BH004_S**		**18 Oct 2024**	**Water**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766001	**Parramatta/Shallow**	**PM-BH14-W**		**21 Oct 2024**	**Water**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
ES2434766002	**Parramatta/Shallow**	**QC03**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
364941-1	**Parramatta/Shallow**	**QC04**	**PM-BH14-W**	**21 Oct 2024**	**Water**	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<5	<0.2
ES2434766003	**Parramatta/Shallow**	**PM-BH15-W**		**21 Oct 2024**	**Water**	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
Statistics																																	
Number of Results						**5**	**5**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**4**	**4**	**5**	**5**	**1**	**4**	**5**	**5**	**5**	**1**	**1**	**5**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<5**	**<0.2**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<5**	**<0.5**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**0.22**	**0.82**	**0.25**	**0.22**	**0.22**	**0.22**	**0.22**	**0.22**	**0.22**	**0.4**	**0.22**	**0.22**	**0.22**	**0.82**	**0.22**	**0.22**	**0.25**	**0.25**	**0.22**	**0.22**		**0.25**	**0.22**	**0.22**	**0.22**			**0.22**
Median Concentration *						**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**2.5**	**0.25**
Standard Deviation *						**0.067**	**0.4**	**0**	**0.067**	**0.067**	**0.067**	**0.067**	**0.067**	**0.067**	**0.34**	**0.067**	**0.067**	**0.067**	**0.4**	**0.067**	**0.067**	**0**	**0**	**0.067**	**0.067**		**0**	**0.067**	**0.067**	**0.067**			**0.067**
95% UCL (Student's-t) *						**0.284**	**1.204**	**0.25**	**0.284**	**0.284**	**0.284**	**0.284**	**0.284**	**0.284**	**0.72**	**0.284**	**0.284**	**0.284**	**1.204**	**0.284**	**0.284**	**0.25**	**0.25**	**0.284**	**0.284**		**0.25**	**0.284**	**0.284**	**0.284**			**0.284**
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T22. Groundwater Analytical Results – Parramatta Shallow Aquifer Criteria (October 2024 GME)

	esticides													Pesticides				Herbicides										
	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.5	0.2	5	2	2	0.2	0.5	0.01	0.01	0.01	0.01	0.01	10	0.01	10	10	20	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.2			0.05					0.004									0.036		0.28								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																												
PFAS NEMP 2020 Freshwater 95%																												
PFAS NEMP 2020 Freshwater 99%																												
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)																												
ANZECC 2000 SE Aust - Lowland River																												
NEPM 2013 Table 1C GILs, Fresh Waters	*0.2*			*0.05*					*0.004*									*0.036*		*0.28*								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<5	-	<5	<0.2	-	-	-	-	-	-	-	-	-	-	<20	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	-	<0.5	<0.5	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<2	<2	-	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10	-	<10

Statistics

Statistics	Fenitrothion	Fenamiphos	Fenthion	Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Safrole	Chlorobenzilate	Carbazole	Mirex	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba	Dinoseb	Fluroxypyr
Number of Results	**1**	**5**	**5**	**5**	**1**	**1**	**5**	**4**	**5**	**1**	**4**	**1**	**1**	**4**	**5**	**1**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**1**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<10**	**<0.01**	**<10**	**<10**	**<20**	**<10**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.2**	**<2**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.2**	**<5**	**<2**	**<5**	**<0.2**	**<0.5**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<10**	**<0.01**	**<10**	**<10**	**<20**	**<10**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *		**0.22**	**0.22**	**0.22**			**0.82**	**1**	**0.82**		**0.25**			**1**	**1.3**		**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**5**	**5**		**5**
Median Concentration *	**0.1**	**0.25**	**0.25**	**0.25**	**0.1**	**0.1**	**1**	**1**	**1**	**0.1**	**0.25**	**0.1**	**2.5**	**1**	**1**	**0.1**	**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**5**	**5**	**10**	**5**
Standard Deviation *		**0.067**	**0.067**	**0.067**			**0.4**	**0**	**0.4**		**0**			**0**	**0.67**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
95% UCL (Student's-t) *		**0.284**	**0.284**	**0.284**			**1.204**	**1**	**1.204**		**0.25**			**1**	**1.94**		**0.25**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**5**	**5**		**5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

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						Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid				
	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)
	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	10	10	2	0.01	0.01	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Freshwater 95%								0.13						220
PFAS NEMP 2020 Freshwater 99%								0.00023						19
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)														
ANZECC 2000 SE Aust - Lowland River														
NEPM 2013 Table 1C GILs, Fresh Waters														

	Fluorotelomer Sulfonic Acids				PFAS Totals			Nitroaromatics			Other			
	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)	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL	0.05	0.01	0.02	0.05	0.01	0.01	0.01	2	2	2	2	0.0002	10	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)														
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														
PFAS NEMP 2020 Freshwater 95%														
PFAS NEMP 2020 Freshwater 99%														
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)														
ANZECC 2000 SE Aust - Lowland River														
NEPM 2013 Table 1C GILs, Fresh Waters														

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	<10	<10	<10	<2	<0.01	<0.02	<0.01	0.02	0.02	<0.1	<0.02	<0.02	<0.02	0.02
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	<10	<10	<10	<2	<0.01	0.04	0.11	0.09	0.20	<0.1	0.12	0.10	0.04	0.07
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	<10	<10	<10	<2	<0.01	0.04	0.12	0.10	0.22	<0.1	0.13	0.11	0.05	0.07
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	-	-	-	-	-	0.04	0.12	0.09	0.21	-	-	-	-	0.06
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	<10	<10	<10	<2	<0.01	<0.02	0.01	0.01	0.02	<0.1	0.07	0.06	<0.02	0.04

Sample Code	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate
ES2434174007	<0.05	<0.05	<0.05	<0.05	0.04	-	-	<2	<2	<2	<2	-	<10	<2
ES2434766001	<0.05	<0.05	<0.05	<0.05	0.57	-	-	<2	<2	<2	<2	-	<10	<2
ES2434766002	<0.05	<0.05	<0.05	<0.05	0.62	-	-	<2	<2	<2	<2	-	<10	<2
364941-1	-	<0.01	<0.02	-	-	0.15	0.32	-	-	<5	<5	<0.0002	-	<10
ES2434766003	<0.05	<0.05	<0.05	<0.05	0.19	-	-	<2	<2	<2	<2	-	<10	<2

Statistics

Statistics	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA
Number of Results	**4**	**4**	**4**	**4**	**4**	**5**	**5**	**5**	**5**	**4**	**4**	**4**	**4**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**5**	**5**	**0**	**3**	**3**	**2**	**5**
Minimum Concentration	**<10**	**<10**	**<10**	**<2**	**<0.01**	**<0.02**	**0.01**	**0.01**	**0.02**	**<0.1**	**<0.02**	**<0.02**	**<0.02**	**0.02**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**0.04**	**0.01**	**0.01**	**0.02**	**ND**	**0.07**	**0.06**	**0.04**	**0.02**
Maximum Concentration	**<10**	**<10**	**<10**	**<2**	**<0.01**	**0.04**	**0.12**	**0.1**	**0.22**	**<0.1**	**0.13**	**0.11**	**0.05**	**0.07**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**0.04**	**0.12**	**0.1**	**0.22**	**ND**	**0.13**	**0.11**	**0.05**	**0.07**
Average Concentration *	**5**	**5**	**5**	**1**	**0.005**	**0.028**	**0.073**	**0.062**	**0.13**	**0.05**	**0.082**	**0.07**	**0.028**	**0.052**
Median Concentration *	**5**	**5**	**5**	**1**	**0.005**	**0.04**	**0.11**	**0.09**	**0.2**	**0.05**	**0.095**	**0.08**	**0.025**	**0.06**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0.016**	**0.06**	**0.043**	**0.1**	**0**	**0.055**	**0.045**	**0.021**	**0.022**
95% UCL (Student's-t) *	**5**	**5**	**5**	**1**	**0.005**	**0.0437**	**0.13**	**0.103**	**0.233**	**0.05**	**0.147**	**0.123**	**0.0518**	**0.0727**
% of Detects	**0**	**0**	**0**	**0**	**0**	**60**	**80**	**100**	**100**	**0**	**75**	**75**	**50**	**100**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**40**	**20**	**0**	**0**	**100**	**25**	**25**	**50**	**0**

Statistics	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of PFAS	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Phosalone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate
Number of Results	**4**	**5**	**5**	**4**	**4**	**1**	**1**	**4**	**4**	**5**	**5**	**1**	**4**	**5**
Number of Detects	**0**	**0**	**0**	**0**	**4**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**<0.01**	**<0.02**	**<0.05**	**0.04**	**0.15**	**0.32**	**<2**	**<2**	**<2**	**<2**	**<0.0002**	**<10**	**<2**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**0.04**	**0.15**	**0.32**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**0.62**	**0.15**	**0.32**	**<2**	**<2**	**<5**	**<5**	**<0.0002**	**<10**	**<10**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**0.62**	**0.15**	**0.32**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.025**	**0.021**	**0.022**	**0.025**	**0.36**			**1**	**1**	**1.3**	**1.3**		**5**	**1.8**
Median Concentration *	**0.025**	**0.025**	**0.025**	**0.025**	**0.38**	**0.15**	**0.32**	**1**	**1**	**1**	**1**	**0.0001**	**5**	**1**
Standard Deviation *	**0**	**0.0089**	**0.0067**	**0**	**0.28**			**0**	**0**	**0.67**	**0.67**		**0**	**1.8**
95% UCL (Student's-t) *	**0.025**	**0.0295**	**0.0284**	**0.025**	**0.69**			**1**	**1**	**1.94**	**1.94**		**5**	**3.505**
% of Detects	**0**	**0**	**0**	**0**	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

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	Phthalates					Solvents						
	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
EQL	50	2	2	2	2	50	50	50	5	0.001	2	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		1,000	3,700	26								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species												
PFAS NEMP 2020 Freshwater 95%												
PFAS NEMP 2020 Freshwater 99%												
SMW WTP-PM-Shallow-Freshwater - Trigger Values (Epic, 2024d)												
ANZECC 2000 SE Aust - Lowland River												
NEPM 2013 Table 1C GILs, Fresh Waters		*1,000*	*3,700*	*10*								

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
ES2434174007	Parramatta/Shallow	SMW_BH004_S		18 Oct 2024	Water	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766001	Parramatta/Shallow	PM-BH14-W		21 Oct 2024	Water	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
ES2434766002	Parramatta/Shallow	QC03	PM-BH14-W	21 Oct 2024	Water	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50
364941-1	Parramatta/Shallow	QC04	PM-BH14-W	21 Oct 2024	Water	<50	<10	<10	<50	<50	-	-	-	-	<0.001	<5	-
ES2434766003	Parramatta/Shallow	PM-BH15-W		21 Oct 2024	Water	-	<2	<2	<2	<2	<50	<50	<50	<5	-	<2	<50

Statistics

Statistics	Bis(2-ethylhexyl)adipate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Isophorone	Vinyl acetate
Number of Results	**1**	**5**	**5**	**5**	**5**	**4**	**4**	**4**	**4**	**1**	**5**	**4**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<2**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<10**	**<10**	**<50**	**<50**	**<50**	**<50**	**<50**	**<5**	**<0.001**	**<5**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *		**1.8**	**1.8**	**5.8**	**5.8**	**25**	**25**	**25**	**2.5**		**1.3**	**25**
Median Concentration *	**25**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**0.0005**	**1**	**25**
Standard Deviation *		**1.8**	**1.8**	**11**	**11**	**0**	**0**	**0**	**0**		**0.67**	**0**
95% UCL (Student's-t) *		**3.505**	**3.505**	**16.03**	**16.03**	**25**	**25**	**25**	**2.5**		**1.94**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	Amino Aliphatics			Physico-Chemical & Major Ions																
	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
	µg/L	µg/L	µg/L	mV	-	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL	2	2	2	0.1	0.01	0.01	1	0.1	10	1	1	1	1	1	1	1	1	1	1	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)									10,422											
ANZECC 2000 SE Aust - Lowland River						6.5-8														
NEPM 2013 Table 1C GILs, Fresh Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2	<2	<2	105	6.98	7.65	12,200	7.6	7,230	3,790	235	<1	<1	1,070	1,070	159	354	1,880	45	133
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2	<2	<2	71.0	6.82	7.50	18,300	4.7	12,100	5,980	383	<1	<1	1,110	1,110	218	489	3,350	62	199

Statistics

Statistics	N-nitrosodiethylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Minimum Concentration	**<2**	**<2**	**<2**	**71**	**6.82**	**7.5**	**12,200**	**4.7**	**7,230**	**3,790**	**235**	**<1**	**<1**	**1,070**	**1,070**	**159**	**354**	**1,880**	**45**	**133**
Minimum Detect	**ND**	**ND**	**ND**	**71**	**6.82**	**7.5**	**12,200**	**4.7**	**7,230**	**3,790**	**235**	**ND**	**ND**	**1,070**	**1,070**	**159**	**354**	**1,880**	**45**	**133**
Maximum Concentration	**<2**	**<2**	**<2**	**105**	**6.98**	**7.65**	**18,300**	**7.6**	**12,100**	**5,980**	**383**	**<1**	**<1**	**1,110**	**1,110**	**218**	**489**	**3,350**	**62**	**199**
Maximum Detect	**ND**	**ND**	**ND**	**105**	**6.98**	**7.65**	**18,300**	**7.6**	**12,100**	**5,980**	**383**	**ND**	**ND**	**1,110**	**1,110**	**218**	**489**	**3,350**	**62**	**199**
Average Concentration *	**1**	**1**	**1**	**88**	**6.9**	**7.6**	**15,250**	**6.2**	**9,665**	**4,885**	**309**	**0.5**	**0.5**	**1,090**	**1,090**	**188**	**422**	**2,615**	**54**	**166**
Median Concentration *	**1**	**1**	**1**	**88**	**6.9**	**7.575**	**15,250**	**6.15**	**9,665**	**4,885**	**309**	**0.5**	**0.5**	**1,090**	**1,090**	**188.5**	**421.5**	**2,615**	**53.5**	**166**
Standard Deviation *	**0**	**0**	**0**	**24**	**0.11**	**0.11**	**4,313**	**2.1**	**3,444**	**1,549**	**105**	**0**	**0**	**28**	**28**	**42**	**95**	**1,039**	**12**	**47**
95% UCL (Student's-t) *	**1**	**1**	**1**	**195.3**	**7.405**	**8.049**	**34,507**	**15.3**	**25,039**	**11,799**	**776.2**	**0.5**	**0.5**	**1,216**	**1,216**	**374.8**	**847.7**	**7,256**	**107.2**	**374.4**
% of Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
% of Non-Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

				Amino Aromatics		Anilines						Nutrients								
	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Arsenic (filtered)
	meq/L	%	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L
EQL	0.01	0.01	1	2	4	4	4	2	2	2	2	0.01	0.1	0.01	0.01	0.01	0.1	0.01	0.01	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											250	0.9								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species														2.4						
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)												3.21					3.14	0.192		
ANZECC 2000 SE Aust - Lowland River																	0.5		0.02	
NEPM 2013 Table 1C GILs, Fresh Waters											*8*									

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Arsenic (filtered)
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	120	5.21	1,850	<2	<4	<4	<4	<2	<2	<2	<2	0.81	1.1	<0.01	<0.01	<0.01	1.1	0.05	<0.01	<1
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	198	0.10	2,560	<2	<4	<4	<4	<2	<2	<2	<2	2.84	12.3	0.44	0.04	0.48	12.8	2.84	<0.01	<1

Statistics

Statistics	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	1-naphthylamine	N-Nitrosodiphenyl & Diphenylamine	2-nitroaniline	3-nitroaniline	4-chloroaniline	4-nitroaniline	2-methyl-5-nitroaniline	Aniline	Ammonia as N	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrite (as N)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Arsenic (filtered)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**2**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**1**	**1**	**1**	**2**	**2**	**0**	**0**
Minimum Concentration	**120**	**0.1**	**1,850**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**0.81**	**1.1**	**<0.01**	**<0.01**	**<0.01**	**1.1**	**0.05**	**<0.01**	**<1**
Minimum Detect	**120**	**0.1**	**1,850**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.81**	**1.1**	**0.44**	**0.04**	**0.48**	**1.1**	**0.05**	**ND**	**ND**
Maximum Concentration	**198**	**5.21**	**2,560**	**<2**	**<4**	**<4**	**<4**	**<2**	**<2**	**<2**	**<2**	**2.84**	**12.3**	**0.44**	**0.04**	**0.48**	**12.8**	**2.84**	**<0.01**	**<1**
Maximum Detect	**198**	**5.21**	**2,560**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.84**	**12.3**	**0.44**	**0.04**	**0.48**	**12.8**	**2.84**	**ND**	**ND**
Average Concentration *	**159**	**2.7**	**2,205**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1.8**	**6.7**	**0.22**	**0.022**	**0.24**	**7**	**1.4**	**0.005**	**0.5**
Median Concentration *	**159**	**2.655**	**2,205**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1.825**	**6.7**	**0.2225**	**0.0225**	**0.2425**	**6.95**	**1.445**	**0.005**	**0.5**
Standard Deviation *	**55**	**3.6**	**502**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.4**	**7.9**	**0.31**	**0.025**	**0.34**	**8.3**	**2**	**0**	**0**
95% UCL (Student's-t) *	**405.2**	**18.79**	**4,446**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**8.233**	**42.06**	**1.596**	**0.133**	**1.742**	**43.89**	**10.25**	**0.005**	**0.5**
% of Detects	**100**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**100**	**50**	**50**	**50**	**100**	**100**	**0**	**0**
% of Non-Detects	**0**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**0**	**50**	**50**	**50**	**0**	**0**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	Metals								
	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)
	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.01	0.01	1	1	1	0.1	1	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	0.2	0.001			1.4	3.4	0.6	11	8
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species									
PFAS NEMP 2020 Freshwater 95%									
PFAS NEMP 2020 Freshwater 99%									
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)					17				107
ANZECC 2000 SE Aust - Lowland River									
NEPM 2013 Table 1C GILs, Fresh Waters	*0.2*	*0.001*			*1.4*	*3.4*	*0.06*	*11*	*8*

	BTEX								
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	2	2	2	2	2	1	5	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	950	180	80		350		16	16	
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species									
PFAS NEMP 2020 Freshwater 95%									
PFAS NEMP 2020 Freshwater 99%									
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)									
ANZECC 2000 SE Aust - Lowland River									
NEPM 2013 Table 1C GILs, Fresh Waters	*950*				*350*	*550*	*16*	*16*	

	C6-C10	C6-C10 (F1 minus BTEX)
	µg/L	µg/L
EQL	20	20
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species		
PFAS NEMP 2020 Freshwater 95%		
PFAS NEMP 2020 Freshwater 99%		
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)		
ANZECC 2000 SE Aust - Lowland River		
NEPM 2013 Table 1C GILs, Fresh Waters		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)
ES2434174008	**Westmead/Deep**	**SMW_WTP_BH02_W**		**18 Oct 2024**	**Water**	<0.1	<0.01	<0.01	<1	<1	<1	<0.1	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20
ES2434174009	**Westmead/Deep**	**SMW_WTP_BH03A_W**		**18 Oct 2024**	**Water**	<0.1	<0.01	<0.01	<1	<1	<1	<0.1	<1	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20	<20

Statistics

Statistic	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.01**	**<0.01**	**<1**	**<1**	**<1**	**<0.1**	**<1**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**	**<20**	**<20**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.1**	**<0.01**	**<0.01**	**<1**	**<1**	**<1**	**<0.1**	**<1**	**<5**	**<1**	**<2**	**<2**	**<2**	**<2**	**<2**	**<1**	**<5**	**<1**	**<20**	**<20**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**0.5**	**0.05**	**0.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**
Median Concentration *	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**0.5**	**0.05**	**0.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.05**	**0.005**	**0.005**	**0.5**	**0.5**	**0.5**	**0.05**	**0.5**	**2.5**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**	**10**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	TRH					MAH									Halogenated Hydrocarbons					
	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	100	100	100	100	100	5	5	5	5	5	5	5	5	5	5	50	50	5	50	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								30												
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<5	<50	<5

Statistics

Statistics	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	1,1,1,2-tetrachloroethane
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**	**<50**	**<5**	**<50**	**<5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<100**	**<100**	**<100**	**<100**	**<100**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<50**	**<50**	**<5**	**<50**	**<5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**
Median Concentration *	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**25**	**25**	**2.5**	**25**	**2.5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	Chlorinated Hydrocarbons																			
	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	270	400	6,500		700				1,900	900	1,100				240			770		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters			*6,500*																	

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5

Statistics

Statistics	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5	25	2.5
Median Concentration *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5	25	2.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25	2.5	25	2.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	Halogenated Benzenes: 1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	5	5	2	10	2	5	5	5	5	50	5	2	2	2	2	5	5	5	5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					360	330	70			100	10	170	160	260	60				55	0.1
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters					*290*						*3*	*85*	*160*	*260*	*60*					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5

Statistics

Statistics	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<5	<5	<2	<10	<2	<5	<5	<5	<5	<50	<5	<2	<2	<2	<2	<5	<5	<5	<5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5	2.5	2.5	2.5	0.25
Median Concentration *	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5	2.5	2.5	2.5	0.25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	2.5	2.5	1	5	1	2.5	2.5	2.5	2.5	25	2.5	1	1	1	1	2.5	2.5	2.5	2.5	0.25
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

		VOCs				SVOCs														
	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	2	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	2			80																
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2	<5	<5	<5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4

Statistics

Statistics	Pentachlorobenzene	cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	N-nitrosodi-n-butylamine	2-(acetylamino) fluorene	3,3-Dichlorobenzidine	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	4-Nitroquinoline-N-oxide	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Dibenzofuran	Hexachloropropene	Methapyrilene	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<5**	**<5**	**<5**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
Median Concentration *	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene
		PAH																		
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	2	0.004	2	2	2	2	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)									0.4		0.2						1.4			2
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2	<0.004	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Statistics

Statistics	Phenacetin	Benzo(b+j+k)fluoranthene	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<0.004	<2	<2	<2	<2	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<0.004	<2	<2	<2	<2	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	1	0.002	1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Median Concentration *	1	0.002	1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	1	0.002	1	1	1	1	0.5	0.5	0.5	0.5	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

				TPH					Phenols											
	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	0.0005	0.5	20	50	100	50	50	2	2	0.01	2	2	2	2	2	4	2	2	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)										20		160			490					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters										*3*		*120*			*340*					

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	<2	<10
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<1.0	<0.0005	<0.5	<20	<50	<100	<50	<50	<2	<2	<0.01	<2	<2	<2	<2	<2	<4	<2	<2	<10

Statistics

Statistics	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-D	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	3&4-Methylphenol (m&p-cresol)	2-Nitrophenol	4-chloro-3-methylphenol	Picloram
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<1**	**<0.0005**	**<0.5**	**<20**	**<50**	**<100**	**<50**	**<50**	**<2**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<2**	**<10**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<1**	**<0.0005**	**<0.5**	**<20**	**<50**	**<100**	**<50**	**<50**	**<2**	**<2**	**<0.01**	**<2**	**<2**	**<2**	**<2**	**<2**	**<4**	**<2**	**<2**	**<10**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.5**	**0.00025**	**0.25**	**10**	**25**	**50**	**25**	**25**	**1**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**5**
Median Concentration *	**0.5**	**0.00025**	**0.25**	**10**	**25**	**50**	**25**	**25**	**1**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**5**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.5**	**0.00025**	**0.25**	**10**	**25**	**50**	**25**	**25**	**1**	**1**	**0.005**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**5**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

			PCBs	Explosives				Organochlorine Pesticides													
	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin
	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	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	4	2	1	0.002	4	4	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	10	320			65		550						0.08					0.01		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters	*3.6*	*320*											*0.03*					*0.006*		

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<4	<2	<1	<0.002	<4	<4	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5

Statistics

Statistics	Pentachlorophenol	Phenol	PCBs (Sum of total)	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	4,4-DDE	a-BHC	Aldrin + Dieldrin	Aldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<4**	**<2**	**<1**	**<0.002**	**<4**	**<4**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<4**	**<2**	**<1**	**<0.002**	**<4**	**<4**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**2**	**1**	**0.5**	**0.001**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**
Median Concentration *	**2**	**1**	**0.5**	**0.001**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**2**	**1**	**0.5**	**0.001**	**2**	**2**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

											Organophosphorous Pestic									
	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)				0.02			0.2	0.09			0.02				0.01			0.01		0.15
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters				*0.01*			*0.2*	*0.01*							*0.01*			*0.01*		*0.15*

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Statistics

	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Median Concentration *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

	es								Pesticides			Herbicides								
	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba
	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	mg/L	mg/L	µg/L	mg/L	µg/L	µg/L
EQL	0.5	0.5	0.5	0.5	2	2	2	0.5	2	2	0.5	0.01	0.01	0.01	0.01	0.01	10	0.01	10	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)				0.05			0.004					0.036		0.28						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%																				
PFAS NEMP 2020 Freshwater 99%																				
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters				*0.05*			*0.004*					*0.036*		*0.28*						

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10

Statistics

Statistics	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Prothiofos	Chlorobenzilate	Carbazole	Pirimphos-ethyl	2,4,5-Trichlorophenoxy Acetic Acid	2,4,5-TP (Silvex)	Hedonal	2,4-Dichlorprop	2,4,6-Trichlorophenoxy-acetic acid	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	4-Chlorophenoxy acetic acid	Clopyralid	Dicamba
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<2	<2	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<0.01	<10	<10
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005	5	0.005	5	5
Median Concentration *	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005	5	0.005	5	5
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.25	0.25	0.25	0.25	1	1	1	0.25	1	1	0.25	0.005	0.005	0.005	0.005	0.005	5	0.005	5	5
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

							Perfluoroalkyl Sulfonic Acids				Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals
	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	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)	Sum of PFAS (WA DER List)
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	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	10	10	10	10	2	0.01	0.02	0.01	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																				
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																				
PFAS NEMP 2020 Freshwater 95%									0.13						220					
PFAS NEMP 2020 Freshwater 99%									0.00023						19					
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																				
ANZECC 2000 SE Aust - Lowland River																				
NEPM 2013 Table 1C GILs, Fresh Waters																				

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01

Statistics

Statistics	Fluroxypyr	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Pronamide	Triclopyr	PFBS	PFHxS	PFOS	Sum of PFHxS and PFOS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	4:2 FTS	6:2 FTS	8:2 FTS	10:2 FTS	Sum of PFAS (WA DER List)
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<10	<10	<10	<10	<2	<0.01	<0.02	<0.01	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	5	5	5	5	1	0.005	0.01	0.005	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
Median Concentration *	5	5	5	5	1	0.005	0.01	0.005	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	5	5	5	5	1	0.005	0.01	0.005	0.005	0.005	0.05	0.01	0.01	0.01	0.005	0.025	0.025	0.025	0.025	0.005
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

Table T23. Groundwater Analytical Results – Westmead Deep Aquifer Criteria (October 2024 GME)

	Nitroaromatics			Other	Phthalates						Solvents					
	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
	µg/L	µg/L	µg/L	µg/L	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	2	2	2	2	10	2	2	2	2	2	50	50	50	5	2	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							1,000	3,700	26							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Freshwater 99%																
SMW WTP-WM-Deep-Freshwater - Trigger Values (Epic, 2024d)																
ANZECC 2000 SE Aust - Lowland River																
NEPM 2013 Table 1C GILs, Fresh Waters							*1,000*	*3,700*	*10*							

Sample Code	Location Code	Field ID	Parent Sample	Date	Matrix Type	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
ES2434174008	Westmead/Deep	SMW_WTP_BH02_W		18 Oct 2024	Water	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50
ES2434174009	Westmead/Deep	SMW_WTP_BH03A_W		18 Oct 2024	Water	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<50	<50	<50	<5	<2	<50

Statistics

Statistics	2-Picoline	4-aminobiphenyl	Pentachloronitrobenzene	Acetophenone	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Isophorone	Vinyl acetate
Number of Results	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<2**	**<2**	**<2**	**<2**	**<10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<2**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<2**	**<2**	**<2**	**<2**	**<10**	**<2**	**<2**	**<2**	**<2**	**<2**	**<50**	**<50**	**<50**	**<5**	**<2**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**1**	**1**	**1**	**1**	**5**	**1**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**1**	**25**
Median Concentration *	**1**	**1**	**1**	**1**	**5**	**1**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**1**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**1**	**1**	**1**	**1**	**5**	**1**	**1**	**1**	**1**	**1**	**25**	**25**	**25**	**2.5**	**1**	**25**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

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Table T24. Rinsate and Trip Blank results (October 2024 GME)

				Metals																	
				Arsenic	**Arsenic (filtered)**	**Cadmium**	**Cadmium (filtered)**	**Chromium (III+VI)**	**Chromium (III+VI) (filtered)**	**Copper**	**Copper (filtered)**	**Lead**	**Lead (filtered)**	**Mercury**	**Mercury (filtered)**	**Nickel**	**Nickel (filtered)**	**Zinc**	**Zinc (filtered)**	**Benzene**	**Toluene**
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	1	0.1	0.1	1	1	1	1	1	1	0.1	0.1	1	1	5	5	1	2
Lab Report Number	**Field ID**	**Date**	**Matrix Type**																		
ES2434174	RS01	17 Oct 2024	Water	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	-	<1	<2
ES2434174	RS02	18 Oct 2024	Water	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	-	<1	<2
ES2434766	RS03	21 Oct 2024	Water	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	<1	<2
ES2434766	RS04	22 Oct 2024	Water	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	<1	<2
ES2434907	RS05	23 Oct 2024	Water	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	<1	<2
ES2434906	RS06	24 Oct 2024	Water	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	-	<1	<2
ES2434907	RS07	25 Oct 2024	Water	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	<1	<2
ES2434174	TB01	10 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<2
ES2434766	TB02	10 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<2
ES2434907	TB03	23 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<2
ES2434906	TB04	24 Oct 2024	Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<2

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Table T24. Rinsate and Trip Blank results (October 2024 GME)

				BTEX						TRH							TPH				
				Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene (BTEX)	Total BTEX	C6-C10	C6-C10 (F1 minus BTEX)	C10-C16	C10-C16 (F2 minus Naphthalene)	C16-C34	C34-C40	C10-C40 (Sum of total)	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (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
EQL				2	2	2	2	5	1	20	20	100	100	100	100	100	20	50	100	50	50
Lab Report Number	**Field ID**	**Date**	**Matrix Type**																		
ES2434174	RS01	17 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434174	RS02	18 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434766	RS03	21 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434766	RS04	22 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434907	RS05	23 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434906	RS06	24 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434907	RS07	25 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2434174	TB01	10 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2434766	TB02	10 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2434907	TB03	23 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2434906	TB04	24 Oct 2024	Water	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20	-	-	-	-

Table T25. Trip Spike Results (October 2024 GME)

Lab Report Number	Sample Type	Field ID	Sampled Date	Matrix Type	BTEX Benzene	BTEX Toluene	BTEX Ethylbenzene	BTEX Xylene (m & p)	BTEX Xylene (o)	BTEX Xylene Total	BTEX Naphthalene (BTEX)	BTEX Total BTEX
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					1	2	2	2	2	2	5	1
ES2434174	**Trip Spike***	**TS01**	**10 Oct 2024**	**Water**	18	17	16	20	19	39	20	90
Trip spike recovery (%)					**90**	**85**	**80**	**100**	**95**	**97.5**	**100**	**90**
ES2434766	**Trip Spike***	**TS02**	**10 Oct 2024**	**Water**	23	22	21	23	22	45	23	111
Trip spike recovery (%)					**115**	**110**	**105**	**115**	**110**	**112.5**	**115**	**111**
ES2434907	**Trip Spike***	**TS03**	**23 Oct 2024**	**Water**	19	16	16	17	17	34	20	85
Trip spike recovery (%)					**95**	**80**	**80**	**85**	**85**	**85**	**100**	**85**
ES2434906	**Trip Spike***	**TS04**	**24 Oct 2024**	**Water**	14	14	14	14	15	29	19	71
Trip spike recovery (%)					**70**	**70**	**70**	**70**	**75**	**72.5**	**95**	**71**

Trip Spike Recoveries. Where no lab LCL and UCL is available, user defined limits between 30% and 150% have been adopted for non-compliance.

*** Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L**

Table T26. RPD Summary Table (October 2024 GME)

Lab Report Number			ES2434174	ES2434174		ES2434174	364372		ES2434766	ES2434766		ES2434766	364941		ES2434906	ES2434906		ES2434906	364936	
Field ID			SMW_BH057_S	QC01		SMW_BH057_S	QC02		PM-BH14-W	QC03		PM-BH14-W	QC04		CZ5a_MW103	QC05		CZ5a_MW103	QC06	
Date			17 Oct 2024	17 Oct 2024		17 Oct 2024	17 Oct 2024		21 Oct 2024	21 Oct 2024		21 Oct 2024	21 Oct 2024		24 Oct 2024	25 Oct 2024		24 Oct 2024	24 Oct 2024	
Matrix Type			Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL																		
NA																				
Irgarol	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-
Amino Aliphatics																				
N-nitrosodiethylamine	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
N-nitrosodi-n-propylamine	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
N-Nitrosomethylethylamine	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
Physico-Chemical & Major Ions																				
Redox Potential (Lab)	mV	0.1	200	-	-	200	-	-	235	-	-	235	-	-	216	-	-	216	-	-
pH Redox	-	0.01	6.18	-	-	6.18	-	-	6.95	-	-	6.95	-	-	7.08	-	-	7.08	-	-
pH (Lab)	-	0.01	6.46	-	-	6.46	-	-	6.83	-	-	6.83	-	-	7.54	-	-	7.54	-	-
Electrical Conductivity (Lab)	µS/cm	1	525	-	-	525	-	-	465	-	-	465	-	-	529	-	-	529	-	-
Dissolved Oxygen	mg/L	0.1	4.6	-	-	4.6	-	-	9.5	-	-	9.5	-	-	3.8	-	-	3.8	-	-
TDS	mg/L	10	311	-	-	311	-	-	311	-	-	311	-	-	5,170	-	-	5,170	-	-
Chloride	mg/L	1	35	-	-	35	-	-	46	-	-	46	-	-	2,580	-	-	2,580	-	-
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	1	80	-	-	80	-	-	72	-	-	72	-	-	559	-	-	559	-	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1	-	-	<1	-	-	<1	-	-	<1	-	-	<1	-	-	<1	-	-
Carbonate as CaCO3	mg/L	1	<1	-	-	<1	-	-	<1	-	-	<1	-	-	<1	-	-	<1	-	-
Bicarbonate as CaCO3	mg/L	1	138	-	-	138	-	-	98	-	-	98	-	-	107	-	-	107	-	-
Alkalinity (total) as CaCO3	mg/L	1	138	-	-	138	-	-	98	-	-	98	-	-	107	-	-	107	-	-
Calcium (filtered)	mg/L	1	11	-	-	11	-	-	4	-	-	4	-	-	140	-	-	140	-	-
Magnesium (filtered)	mg/L	1	17	-	-	17	-	-	5	-	-	5	-	-	136	-	-	136	-	-
Sodium (filtered)	mg/L	1	75	-	-	75	-	-	108	-	-	108	-	-	1,560	-	-	1,560	-	-
Potassium (filtered)	mg/L	1	12	-	-	12	-	-	1	-	-	1	-	-	50	-	-	50	-	-
Anions Total	meq/L	0.01	5.41	-	-	5.41	-	-	5.04	-	-	5.04	-	-	86.6	-	-	86.6	-	-
Cations Total	meq/L	0.01	5.52	-	-	5.52	-	-	5.33	-	-	5.33	-	-	87.3	-	-	87.3	-	-
Ionic Balance	%	0.01	0.98	-	-	0.98	-	-	2.82	-	-	2.82	-	-	0.44	-	-	0.44	-	-
Hardness as CaCO3 (filtered)	mg/L	1	97	-	-	97	-	-	30	-	-	30	-	-	910	-	-	910	-	-
Amino Aromatics																				
1-naphthylamine	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
2-naphthylamine	µg/L	5	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-
Diphenylamine	µg/L	5	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-
N-Nitrosodiphenyl & Diphenylamine	µg/L	4	<4	<4	0	<4	-	-	<4	<4	0	<4	-	-	<4	<4	0	<4	-	-
Anilines																				
2-nitroaniline	µg/L	4	<4	<4	0	<4	<5	0	<4	<4	0	<4	<5	0	<4	<4	0	<4	<5	0
3-nitroaniline	µg/L	4	<4	<4	0	<4	<5	0	<4	<4	0	<4	<5	0	<4	<4	0	<4	<5	0
4-chloroaniline	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
4-nitroaniline	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
2-methyl-5-nitroaniline	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Aniline	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Nutrients																				
Ammonia as N	mg/L	0.01	0.03	-	-	0.03	-	-	<0.01	-	-	<0.01	-	-	5.54	-	-	5.54	-	-
Kjeldahl Nitrogen Total	mg/L	0.1	0.2	-	-	0.2	-	-	0.4	-	-	0.4	-	-	6.5	-	-	6.5	-	-
Nitrate (as N)	mg/L	0.01	0.10	-	-	0.10	-	-	4.12	-	-	4.12	-	-	<0.01	-	-	<0.01	-	-
Nitrite (as N)	mg/L	0.01	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-
Nitrite + Nitrate as N	mg/L	0.01	0.10	-	-	0.10	-	-	4.12	-	-	4.12	-	-	<0.01	-	-	<0.01	-	-
Nitrogen (Total)	mg/L	0.1	0.3	-	-	0.3	-	-	4.5	-	-	4.5	-	-	6.5	-	-	6.5	-	-
Total Phosphorus as P (Organic Phosphate as P)	mg/L	0.01	0.07	-	-	0.07	-	-	0.06	-	-	0.06	-	-	0.29	-	-	0.29	-	-
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	0.01	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-
Metals																				
Aluminium (filtered)	mg/L	0.01	-	-	-	-	<0.01	-	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Arsenic (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	7	7	0	7	7	0
Cadmium (filtered)	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Chromium (hexavalent) (filtered)	mg/L	0.005	<0.01	<0.01	0	<0.01	<0.005	0	<0.01	<0.01	0	<0.01	<0.005	0	<0.01	<0.01	0	<0.01	<0.005	0
Chromium (Trivalent)	mg/L	0.005	-	-	-	-	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	<0.005	-
Chromium (Trivalent) (filtered)	mg/L	0.005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-
Chromium (III+VI) (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Copper (filtered)	µg/L	1	39	42	7	39	40	3	19	12	45	19	12	45	<1	<1	0	<1	<1	0
Iron (filtered)	mg/L	0.01	-	-	-	-	<0.01	-	<0.05	<0.05	0	<0.05	<0.01	0	4.77	4.94	4	4.77	6.6	32
Lead (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Manganese (filtered)	mg/L	0.001	-	-	-	-	0.086	-	<0.001	<0.001	0	<0.001	<0.005	0	0.360	0.365	1	0.360	0.36	0
Mercury (filtered)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Nickel (filtered)	µg/L	1	1	1	0	1	1	0	<1	<1	0	<1	<1	0	1	1	0	1	1	0
Phosphorus	mg/L	0.05	-	-	-	-	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	-
Phosphorus (filtered)	mg/L	0.05	-	-	-	-	-	-	<1	<1	0	<1	-	-	-	-	-	-	-	-
Zinc (filtered)	µg/L	1	7	<5	33	7	3	80	<5	<5	0	<5	2	0	5	<5	0	5	2	86
BTEX																				
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Ethylbenzene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Xylene (m & p)	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Xylene Total	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
Naphthalene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Naphthalene (BTEX)	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Total BTEX	µg/L	1	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-
TRH																				
C6-C10	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0
C6-C10 (F1 minus BTEX)	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0
C10-C16	µg/L	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
C10-C16 (F2 minus Naphthalene)	µg/L	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
C16-C34	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
C34-C40	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
C10-C40 (Sum of total)	µg/L	50	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
MAH																				
1,2,4-trimethylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,3,5-trimethylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Isopropylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
n-butylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
n-propylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
p-isopropyltoluene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
sec-butylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Styrene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
tert-butylbenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Halogenated Hydrocarbons																				
1,2-dibromoethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Bromomethane	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Dichlorodifluoromethane	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Iodomethane	µg/L	5	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-
Trichlorofluoromethane	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Chlorinated Hydrocarbons																				
1,1,1,2-tetrachloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,1,1-trichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,1,2,2-tetrachloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,1,2-trichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,1-dichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,1-dichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,1-dichloropropene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2,3-trichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2-dibromo-3-chloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2-dichloroethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,3-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
2,2-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Bromochloromethane	µg/L	1	-	-	-	-	<1	-	-	-	-	-	<1	-	-	-	-	-	<1	-
Bromodichloromethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Bromoform	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Carbon tetrachloride	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Chlorodibromomethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Chloroethane	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Chloroform	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Chloromethane	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
cis-1,2-dichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
cis-1,3-dichloropropene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Dibromomethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Hexachlorobutadiene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
Hexachlorocyclopentadiene	µg/L	5	<10	<10	0	<10	<5	0	<10	<10	0	<10	<5	0	<10	<10	0	<10	<5	0
Hexachloroethane	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Trichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Tetrachloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
trans-1,2-dichloroethene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
trans-1,3-dichloropropene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Vinyl chloride	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Halogenated Benzenes																				
1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	µg/L	4	-	-	-	-	<4	-	-	-	-	-	<4	-	-	-	-	-	<4	-
1,2,3-trichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2,4-trichlorobenzene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
1,2-dichlorobenzene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
1,3-dichlorobenzene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
1,4-dichlorobenzene	µg/L	1	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
2-chlorotoluene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
4-chlorotoluene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Bromobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Chlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Hexachlorobenzene	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Pentachlorobenzene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
VOCs																				
cis-1,4-Dichloro-2-butene	µg/L	5	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-
trans-1,4-Dichloro-2-butene	µg/L	5	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-
Pentachloroethane	µg/L	2	<5	<5	0	<5	<2	0	<5	<5	0	<5	<2	0	<5	<5	0	<5	<2	0
N-nitrosodi-n-butylamine	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
SVOCs																				
2-(acetylamino) fluorene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
3,3-Dichlorobenzidine	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
4-(dimethylamino) azobenzene	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
4-bromophenyl phenyl ether	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
4-chlorophenyl phenyl ether	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
4-Nitroquinoline-N-oxide	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
Azobenzene	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Benzyl alcohol	µg/L	5	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-
Bis(2-chloroethoxy) methane	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Bis(2-chloroethyl)ether	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Bis(2-chloroisopropyl) ether	µg/L	5	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-
Dibenzofuran	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Hexachloropropene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Isosafrole	µg/L	10	-	-	-	-	<10	-	-	-	-	-	<10	-	-	-	-	-	<10	-
Methapyrilene	µg/L	2	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0
N-nitrosomorpholine	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
N-nitrosopiperidine	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
N-nitrosopyrrolidine	µg/L	4	<4	<4	0	<4	-	-	<4	<4	0	<4	-	-	<4	<4	0	<4	-	-
Phenacetin	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
PAH																				
Benzo(b+j+k)fluoranthene	mg/L	0.0002	<0.004	<0.004	0	<0.004	<0.0002	0	-	-	-	-	<0.0002	-	<0.004	<0.004	0	<0.004	<0.0002	0
1-Chloronaphthalene	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
2-chloronaphthalene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2-methylnaphthalene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
3-methylcholanthrene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
7,12-dimethylbenz(a)anthracene	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Acenaphthene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Acenaphthylene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Anthracene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Benz(a)anthracene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Benzo(a) pyrene	µg/L	0.1	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
Benzo(b+j)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	-	-	<1.0	<1.0	0	<1.0	-	-	<1.0	<1.0	0	<1.0	-	-
Benzo(g,h,i)perylene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Benzo(k)fluoranthene	µg/L	1	<1.0	<1.0	0	<1.0	-	-	<1.0	<1.0	0	<1.0	-	-	<1.0	<1.0	0	<1.0	-	-
Chrysene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Dibenz(a,h)anthracene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Fluoranthene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Fluorene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Phenanthrene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Pyrene	µg/L	0.1	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<1.0	0	<1.0	<0.1	0
Benzo(a)pyrene TEQ	mg/L	0.0005	-	-	-	-	<0.0005	-	-	-	-	-	<0.0005	-	-	-	-	-	<0.0005	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.0005	<0.0005	<0.0005	0	<0.0005	-	-	<0.0005	<0.0005	0	<0.0005	-	-	<0.0005	<0.0005	0	<0.0005	-	-
PAHs (Sum of total)	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
PAHs (Sum of positives)	mg/L	0.0001	-	-	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-	-	-	-	<0.0001	-
TPH																				
C6-C9	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0
C10-C14	µg/L	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
C15-C28	µg/L	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
C29-C36	µg/L	50	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0
C10-C36 (Sum of total)	µg/L	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
Phenols																				
2,3,4,6-Tetrachlorophenol	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
2,4,5-Trichlorophenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2,4-Dinitrophenol	mg/L	0.02	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-
2,4,6-Trichlorophenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2,6-D	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
2,4-Dichlorophenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2,4-Dimethylphenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2,6-Dichlorophenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2-Chlorophenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
2-Methylphenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
3&4-Methylphenol (m&p-cresol)	µg/L	4	<4	<4	0	<4	<4	0	<4	<4	0	<4	<4	0	<4	<4	0	<4	<4	0
2-Nitrophenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
4,6-Dinitro-2-methylphenol	µg/L	20	-	-	-	-	<20	-	-	-	-	-	<20	-	-	-	-	-	<20	-
4-Nitrophenol	µg/L	20	-	-	-	-	<20	-	-	-	-	-	<20	-	-	-	-	-	<20	-
4-chloro-3-methylphenol	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Picloram	µg/L	1	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<1	-
Pentachlorophenol	µg/L	4	<4	<4	0	<4	<10	0	<4	<4	0	<4	<10	0	<4	<4	0	<4	<10	0
Phenol	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
PCBs																				
Arochlor 1016	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1221	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1232	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1242	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1248	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1254	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1260	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-	-	-	-	-	<2	-
PCBs (Sum of total)	µg/L	1	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-
Explosives																				
1,3,5-Trinitrobenzene	mg/L	0.002	<0.002	<0.002	0	<0.002	-	-	<0.002	<0.002	0	<0.002	-	-	<0.002	<0.002	0	<0.002	-	-
1,3-Dinitrobenzene	mg/L	0.005	-	-	-	-	<0.005	-	-	-	-	-	<0.005	-	-	-	-	-	<0.005	-
2,4-Dinitrotoluene	µg/L	4	<4	<4	0	<4	-	-	<4	<4	0	<4	-	-	<4	<4	0	<4	-	-
2,6-dinitrotoluene	µg/L	4	<4	<4	0	<4	<5	0	<4	<4	0	<4	<5	0	<4	<4	0	<4	<5	0
Nitrobenzene	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Organochlorine Pesticides																				
4,4-DDE	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
a-BHC	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Aldrin + Dieldrin	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Aldrin	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0

Table T26. RPD Summary Table (October 2024 GME)

		Lab Report Number	ES2434174	ES2434174		ES2434174	364372		ES2434766	ES2434766		ES2434766	364941		ES2434906	ES2434906		ES2434906	364936	
		Field ID	SMW_BH057_S	QC01		SMW_BH057_S	QC02		PM-BH14-W	QC03		PM-BH14-W	QC04		CZ5a_MW103	QC05		CZ5a_MW103	QC06	
		Date	17 Oct 2024	17 Oct 2024		17 Oct 2024	17 Oct 2024		21 Oct 2024	21 Oct 2024		21 Oct 2024	21 Oct 2024		24 Oct 2024	25 Oct 2024		24 Oct 2024	24 Oct 2024	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL																		
b-BHC	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Chlordane	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Chlordane (cis)	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Chlordane (trans)	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
d-BHC	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
DDD	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
DDT	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0
DDT+DDE+DDD	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Dieldrin	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Endosulfan I	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Endosulfan II	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Endosulfan sulphate	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Endrin	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Endrin aldehyde	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Endrin ketone	µg/L	0.5	<0.5	<0.5	0	<0.5	<2	0	<0.5	<0.5	0	<0.5	<2	0	<0.5	<0.5	0	<0.5	<2	0
g-BHC (Lindane)	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Heptachlor	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Heptachlor epoxide	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Methoxychlor	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0
Organophosphorous Pesticides																				
Azinophos methyl	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Bromophos-ethyl	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Carbophenothion	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Chlorfenvinphos	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Chlorpyrifos	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Chlorpyrifos-methyl	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Coumaphos	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Demeton-S-methyl	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Diazinon	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Dichlorvos	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Dimethoate	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Disulfoton	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Ethyl methanesulfonate	µg/L	5	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-
Ethion	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Fenitrothion	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Fenamiphos	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Fenthion	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Malathion	µg/L	0.2	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
Methidathion	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Mevinphos (Phosdrin)	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Methyl parathion	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0
Monocrotophos	µg/L	2	<2.0	<2.0	0	<2.0	-	-	<2.0	<2.0	0	<2.0	-	-	<2.0	<2.0	0	<2.0	-	-
Parathion	µg/L	0.2	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0
Phorate	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Prothiofos	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Ronnel	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Safrole	µg/L	5	-	-	-	-	<5	-	-	-	-	-	<5	-	-	-	-	-	<5	-
Pesticides																				
Chlorobenzilate	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
Carbazole	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Mirex	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Pirimphos-ethyl	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Herbicides																				
Metribuzin	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-
2,4,5-Trichlorophenoxy Acetic Acid	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
2,4,5-TP (Silvex)	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
Hedonal	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
2,4-Dichlorprop	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
2,4,6-Trichlorophenoxy-acetic acid	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	µg/L	0.5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<0.5	-
2-Chlorophenoxyacetic acid	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-
4-Chlorophenoxy acetic acid	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
Ametryn	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Acifluorfen	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Atrazine	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Bentazone	µg/L	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-
Bromoxynil	µg/L	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-
Chloramben	µg/L	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-
Clopyralid	µg/L	0.5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<0.5	-
Cyanazine	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-
Dicamba	µg/L	0.5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<0.5	-
Dinoseb	µg/L	1	-	-	-	-	<20	-	-	-	-	-	<20	-	-	-	-	-	<1	-
Fluroxypyr	µg/L	1	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<1	-
Hexazinone	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-
2-Methyl-4-chlorophenoxyacetic acid	µg/L	0.5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<0.5	-
2-Methyl-4-Chlorophenoxy Butanoic Acid	µg/L	0.5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<0.5	-
Mecoprop	µg/L	0.5	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	-	-	-	-	<0.5	-
Prometryn	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Pronamide	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
Propazine	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Simazine	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Terbutryn	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Triclopyr	mg/L	0.0005	<0.01	<0.01	0	<0.01	-	-	<0.01	<0.01	0	<0.01	-	-	-	-	-	-	<0.0005	-
Perfluoroalkyl Sulfonic Acids																				
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	-	-	0.04	0.04	0	0.04	0.04	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.01	0.01	0	0.01	0.01	0	0.11	0.12	9	0.11	0.12	9	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	0.02	0.03	40	0.02	0.03	40	0.09	0.10	11	0.09	0.09	0	0.01	0.02	67	0.01	0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	0.03	0.04	29	0.03	0.04	29	0.20	0.22	10	0.20	0.21	5	0.01	0.02	67	0.01	0.01	0
Perfluoroalkyl Carboxylic Acid																				
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1	0	<0.1	-	-	<0.1	<0.1	0	<0.1	-	-	<0.1	<0.1	0	<0.1	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	0.12	0.13	8	0.12	-	-	0.08	0.09	12	0.08	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	0.10	0.11	10	0.10	-	-	0.04	0.04	0	0.04	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	0.04	0.05	22	0.04	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.07	0.07	0	0.07	0.06	15	0.01	0.01	0	0.01	0.01	0
Fluorotelomer Sulfonic Acids																				
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
PFAS Totals																				
Sum of PFAS (WA DER List)	µg/L	0.01	0.03	0.04	29	0.03	-	-	0.57	0.62	8	0.57	-	-	0.14	0.16	13	0.14	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	-	-	-	-	0.03	-	-	-	-	-	0.15	-	-	-	-	-	0.02	-
Sum of PFAS	µg/L	0.01	-	-	-	-	0.04	-	-	-	-	-	0.32	-	-	-	-	-	0.02	-
Nitroaromatics																				
2-Picoline	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
4-aminobiphenyl	µg/L	2	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-	<2	<2	0	<2	-	-
Pentachloronitrobenzene	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Organic																				
Terbutylazine	mg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	-
Other																				
3,5-Dichlorobenzoic acid	mg/L	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-
Acetophenone	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Actril (Ioxynil)	mg/L	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-
Phosalone	mg/L	0.0002	-	-	-	-	<0.0002	-	-	-	-	-	<0.0002	-	-	-	-	-	<0.0002	-
Phthalates																				
Bis(2-ethylhexyl) phthalate	µg/L	10	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-	<10	<10	0	<10	-	-
Butyl benzyl phthalate	µg/L	2	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0
Bis(2-ethylhexyl)adipate	µg/L	50	-	-	-	-	<50	-	-	-	-	-	<50	-	-	-	-	-	<50	-
Diethylphthalate	µg/L	2	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0
Dimethyl phthalate	µg/L	2	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0	<2	<2	0	<2	<10	0
Di-n-butyl phthalate	µg/L	2	<2	<2	0	<2	<50	0	<2	<2	0	<2	<50	0	<2	<2	0	<2	<50	0
Di-n-octyl phthalate	µg/L	2	<2	<2	0	<2	<50	0	<2	<2	0	<2	<50	0	<2	<2	0	<2	<50	0
Solvents																				
Methyl Ethyl Ketone	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-
2-hexanone (MBK)	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-
4-Methyl-2-pentanone	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-
Carbon disulfide	µg/L	5	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-
Cyclohexane	mg/L	0.001	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-
Isophorone	µg/L	2	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
Vinyl acetate	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-

*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: 50 (1 - 10 x EQL); 50 (10 - 30 x EQL); 50 (> 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

GWMW Location	GWMW ID	Analyte	Guideline	Unit	Criteria Value	Reported Value
CZ1/Shallow	CZ1_BH13_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	2.4
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	2
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	10
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 95% / PFAS NEMP 2020 Interim Marine 99%	µg/L	0.13 / 0.00023	0.56
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.18
CZ1/Shallow	SMW_WTP_BH25_S	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	5.84
		Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	3.63
		Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	12.6
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	14
		Chlorobenzene	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	55	296
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 95% / PFAS NEMP 2020 Interim Marine 99%	µg/L	0.13 / 0.00023	0.02
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.9
CZ1/Shallow	SMW_WTP_BH25_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	5.6
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	30
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	151
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	4.97
CZ5a/Shallow	CZ5_MW09*	Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	12
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	14
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.59
Rosehill/Shallow	CZ4e_MW03_W	Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	2
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	12
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	33
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 95% / PFAS NEMP 2020 Interim Marine 99%	µg/L	0.13 / 0.00023	0.01
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.52
Rosehill/Shallow	CZ4e_MW02_W	Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	2.86
		Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	3.3
		Reactive Phosphorus as P (Orthophosphate as P)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.005	0.02
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	26
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	63
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	4.87
Rosehill/Deep	SMW_ENV145_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	18.0
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	1,630
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	9
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	15
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.85
Rosehill/Shallow	SMW_WTP_BH13_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	0.5
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	4
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	11
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.59
CZ3/Shallow	SMW_ENV039_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	1.1
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	5
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.03
CZ3/Deep	GALC-MW16_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	9.1
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.85
CZ1/Shallow	SMW_ENV226_S	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	7.78
		Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	13.3
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	8
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	11
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.41
CZ3/Shallow	SMW_ENV009_W	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	7.12
		Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	8.5
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.44
CZ3/Deep	SMW_BH057_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	1
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.79

T27: Summary of Adopted Criteria Exceedances – Marine and Freshwater (Generic)
August 2024 GME

GWMW Location	GWMW ID	Analyte	Guideline	Unit	Criteria Value	Reported Value
CZ3/Shallow	SMW_BH057_S*	Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	21
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 95% / PFAS NEMP 2020 Interim Marine 99%	µg/L	0.13 / 0.00023	0.02
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.4
CZ5a/Shallow	CZ5a_MW102	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	2.85
		Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	4.1
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	13
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	24
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 95% / PFAS NEMP 2020 Interim Marine 99%	µg/L	0.13 / 0.00023	0.02
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	7.27
CZ5a/Shallow	CZ5a_MW103	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	7.31
		Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	8.5
		pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.53
Parramatta/Shallow	SMW_BH004_S	Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	10.1
		Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	11.6
		Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	58
		Zinc (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	14
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 95% / PFAS NEMP 2020 Freshwater 99%	µg/L	0.13 / 0.00023	0.03
		pH (field)	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	6.06
Westmead/Deep	SMW_WTP_BH03A_W	Ammonia as N	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.9	2.74
		Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	5.7
		Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	2
		pH (field)	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	6.52
Westmead/Deep	SMW_WTP_BH02_W	Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	2.0
		Aluminium (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	mg/L	0.055	0.18
		Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	4
		pH (field)	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	8.96
Parramatta/Shallow	PM_BH14_W	Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	3.10
		Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	3.8
		Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	74
		Zinc (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	9
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 95% / PFAS NEMP 2020 Freshwater 99%	µg/L	0.13 / 0.00023	0.22
		pH (field)	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	6.47
Parramatta/Shallow	PM_BH15_W*	Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	0.9
		Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	4
		Zinc (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	10
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 95% / PFAS NEMP 2020 Freshwater 99%	µg/L	0.13 / 0.00023	0.03
		pH (field)	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	5.37
CZ3/Shallow	GALC-MW18	pH (field)	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.98

*denotes the highest reported value (most conservative) between primary, duplicate and triplicate results

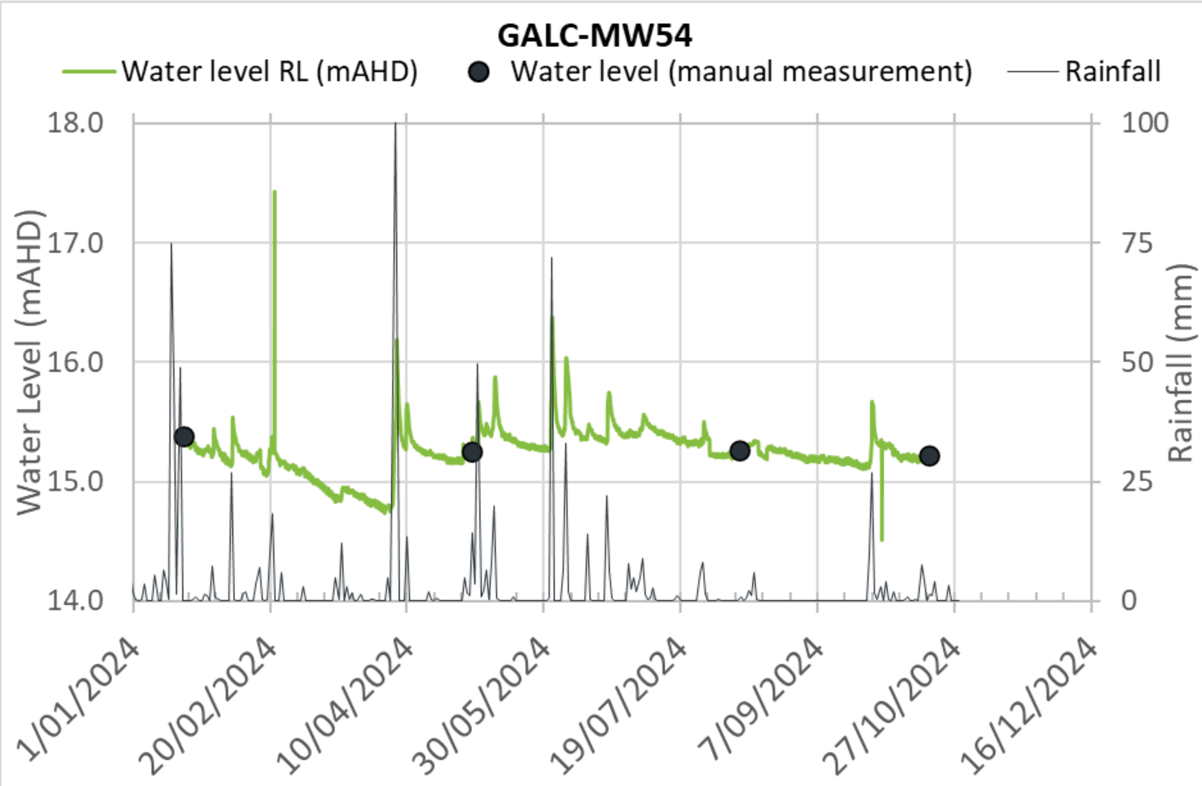
GWMW Location	GWMW ID	Date sampled	Analyte	Guideline	Unit	Criteria Value	Reported Value
CZ1/Shallow	CZ1_BH13_W	23/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	0.9
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99% / PFAS NEMP 2020 Interim Marine 95%	µg/L	0.00023 / 0.13	0.46
			pH	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	6.28
Rosehill/Shallow	CZ4e_MW02_W	25/10/2024	Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	73
			Nickel (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	70 / 7	106
			Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	111
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	4.97
Rosehill/Shallow	CZ4e_MW03_W	25/10/2024	Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	4
			Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	14
			Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	43
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.19
CZ5a/Shallow	CZ5_MW09	23/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	0.4
			Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	12
			Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	15
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.74
CZ5a/Shallow	CZ5a_MW103*	24/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	5.54
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	6.5
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.02
CZ5a/Shallow	CZ5a_MW104	24/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	2.80
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	3.5
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.01
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.69
CZ3/Deep	GALC-MW16_W	22/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	1.0
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.92
CZ3/Shallow	SMW_BH057_S*	17/10/2024	Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	42
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.03
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.65
CZ3/Deep	SMW_BH057_W	17/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	2.67
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	2.7
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.21
CZ3/Shallow	SMW_ENV009_W	21/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	6.96
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	8.1
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.72
CZ3/Shallow	SMW_ENV010_W	21/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	3.86
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	5.4
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.03
CZ3/Shallow	SMW_ENV039_W	23/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	0.9
			Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	153
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.12
Rosehill/Deep	SMW_ENV145_W	23/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	1.0
			Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	66
			Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	9
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.01
Rosehill/Shallow	SMW_WTP_BH13_W	22/10/2024	Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	2
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.12

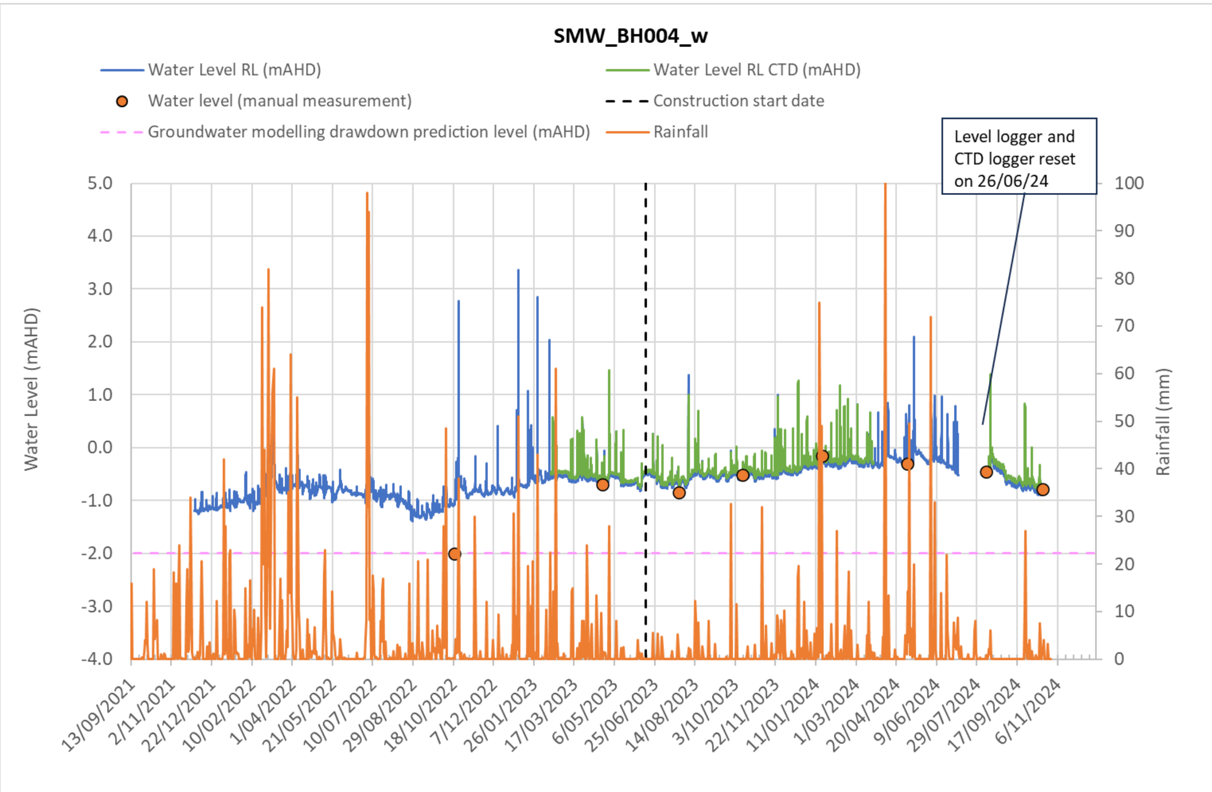
GWMW Location	GWMW ID	Date sampled	Analyte	Guideline	Unit	Criteria Value	Reported Value
CZ1/Shallow	SMW_WTP_BH25_S	22/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	8.91
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	10.8
			Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	13
			Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	20
			Chlorobenzene	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	55	479
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	6.89
CZ1/Shallow	SMW_WTP_BH25_W	22/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	1.46
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	4.9
			Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	30
			Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8 / 15	166
			pH	ANZECC 2000 SE Aust - Estuaries	pH units	7-8.5	5.13
Parramatta/Shallow	PM-BH14-W*	21/10/2024	Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	4.12
			Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	4.5
			Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	19
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.10
			pH	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	6.46
Parramatta/Shallow	PM-BH15-W	21/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	1.0
			Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	3
			Zinc (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	14
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.01
			pH	ANZECC 2000 SE Aust - Lowland River	pH units	6.5-8	5.6
Parramatta/Shallow	SMW_BH004_S	18/10/2024	Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	7.09
			Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	7.7
			Copper (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	34
			Zinc (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023) / NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	22
			Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.02
Westmead/Deep	SMW_WTP_BH02_W	18/10/2024	Nitrogen (Total)	ANZECC 2000 SE Aust - Lowland River	mg/L	0.5	1.1
Westmead/Deep	SMW_WTP_BH03A_W	18/10/2024	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	2.84
			Nitrogen (Total)	ANZECC 2000 SE Aust - Estuaries	mg/L	0.3	12.8

*denotes the highest reported value (most conservative) between primary, duplicate and triplicate results

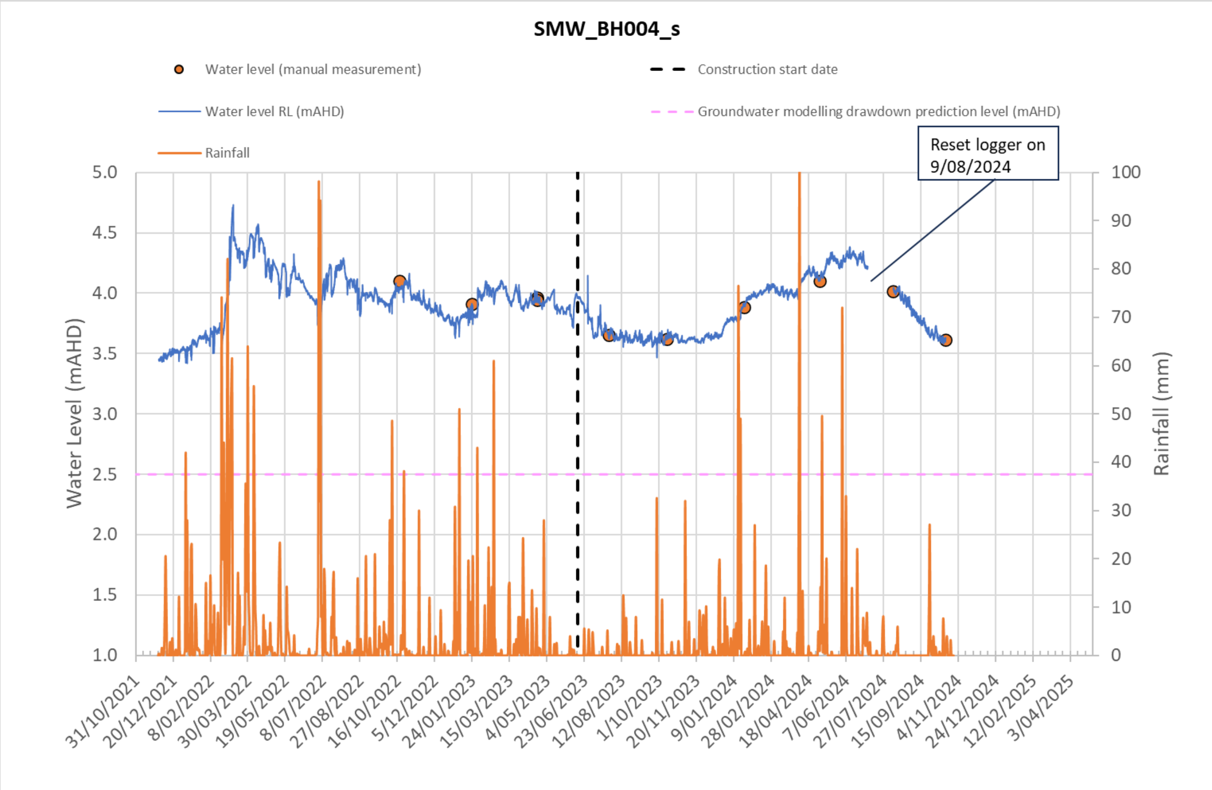
APPENDIX C – HYDROGRAPHS

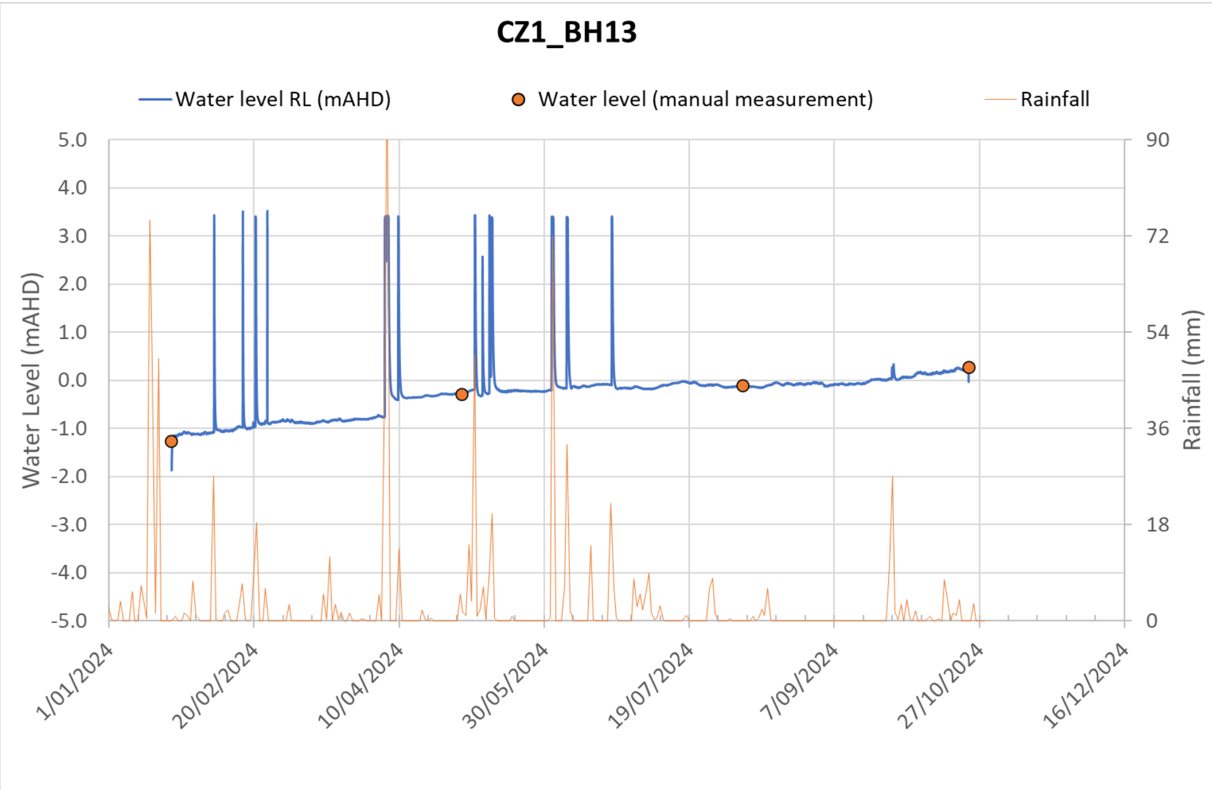
Appendix C – Hydrographs



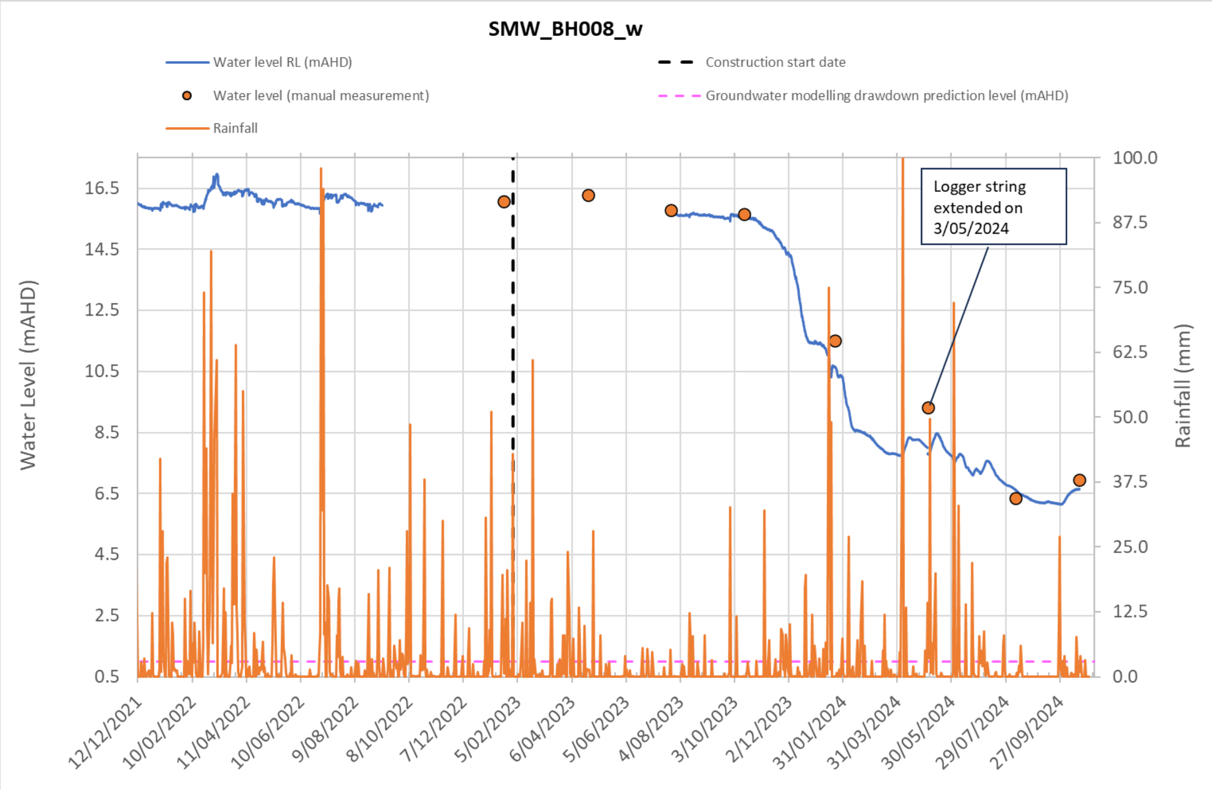


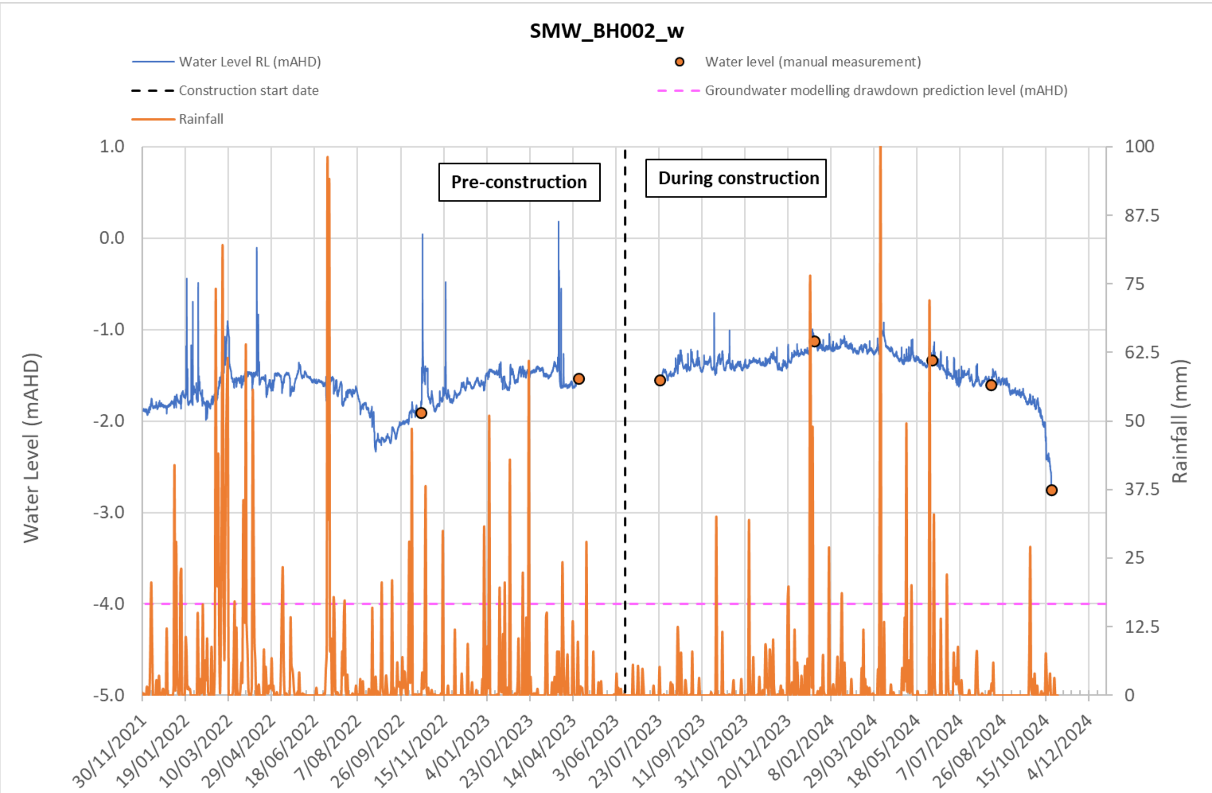
Appendix C – Hydrographs

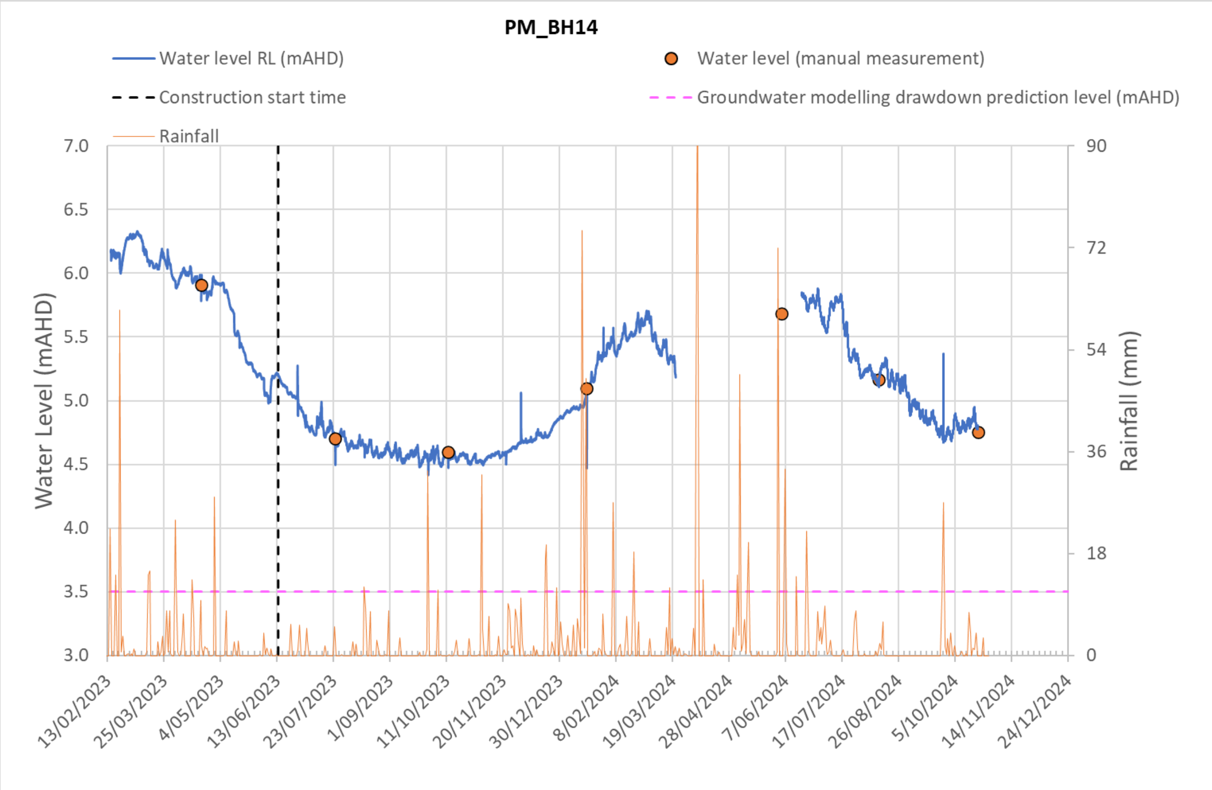




Appendix C – Hydrographs






PM_BH14
Water level RL (mAHD)
Water level (manual measurement)
Construction start time
Groundwater modelling drawdown prediction level (mAHD)
Rainfall
Water Level (mAHD)
Rainfall (mm)
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
90
72
54
36
18
0
13/02/2023
25/03/2023
4/05/2023
13/06/2023
23/07/2023
1/09/2023
11/10/2023
20/11/2023
30/12/2023
8/02/2024
19/03/2024
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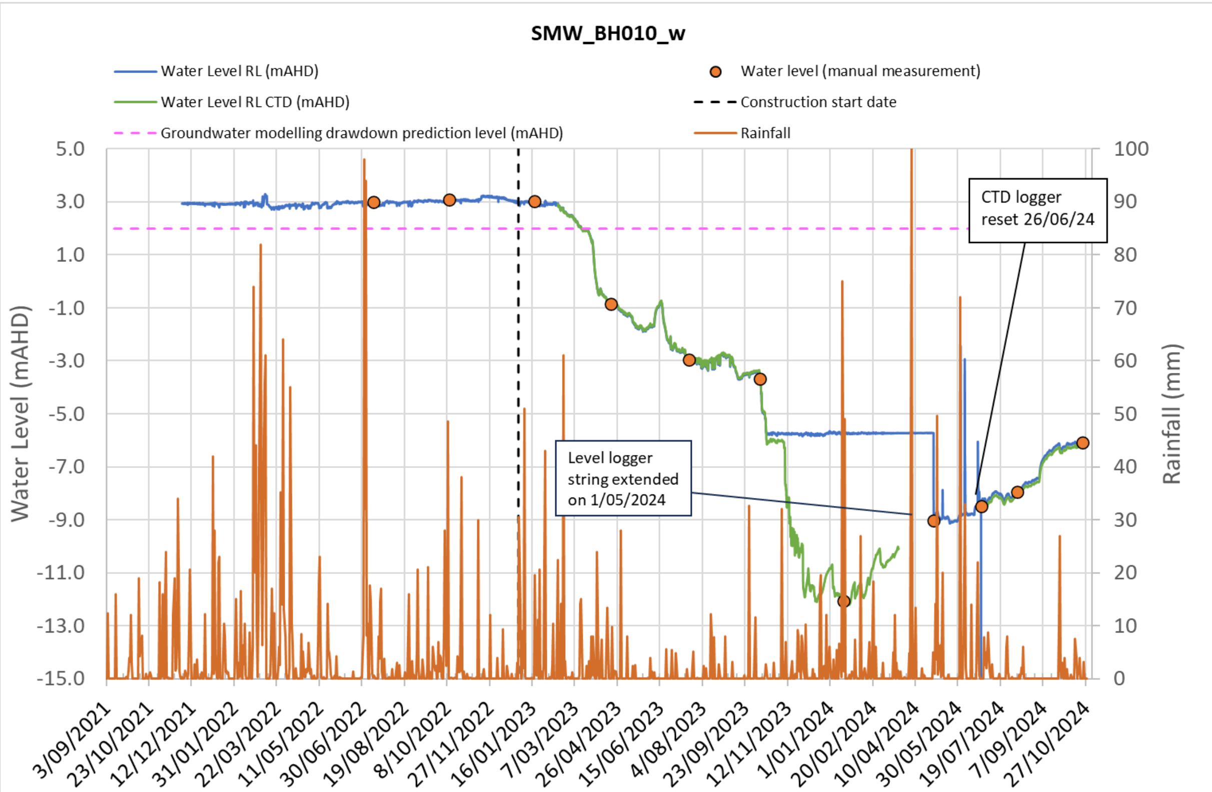
14/11/2024
24/12/2024


SMW_BH010_w
Water Level RL (mAHD)
Water level (manual measurement)
Water Level RL CTD (mAHD)
Construction start date
Groundwater modelling drawdown prediction level (mAHD)
Rainfall
Water Level (mAHD)
Rainfall (mm)
CTD logger reset 26/06/24
Level logger string extended on 1/05/2024
5.0
3.0
1.0
-1.0
-3.0
-5.0
-7.0
-9.0
-11.0
-13.0
-15.0
100
90
80
70
60
50
40
30
20
10
0
3/09/2021
23/10/2021
12/12/2021
31/01/2022
22/03/2022
11/05/2022
30/06/2022
19/08/2022
8/10/2022
27/11/2022
16/01/2023
7/03/2023
26/04/2023
15/06/2023
4/08/2023
23/09/2023
12/11/2023
1/01/2024
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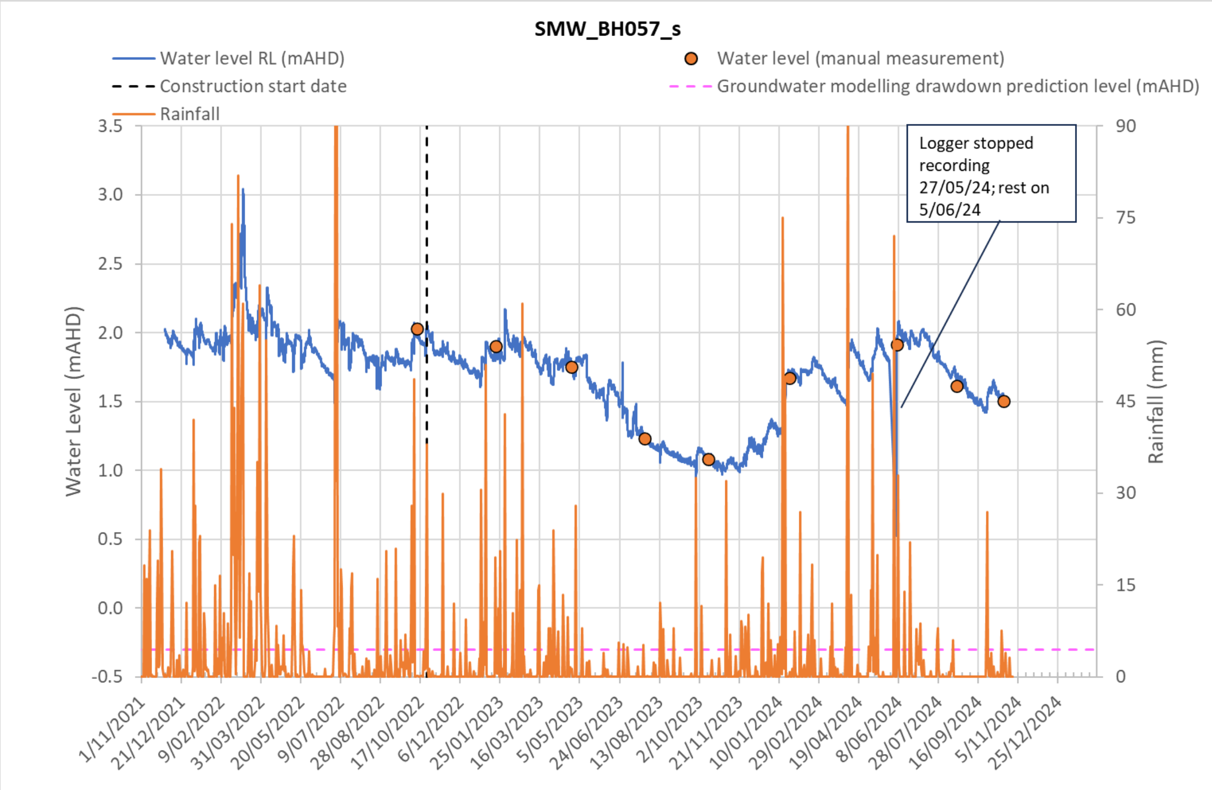
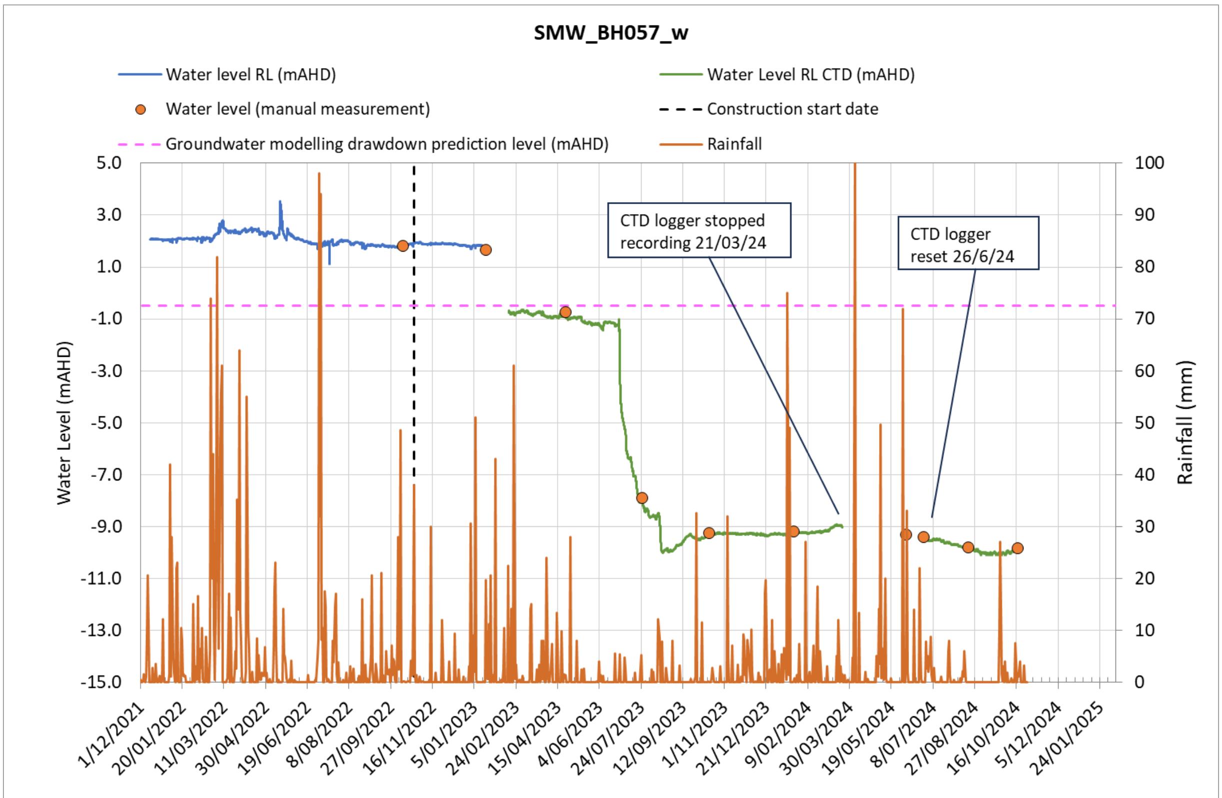
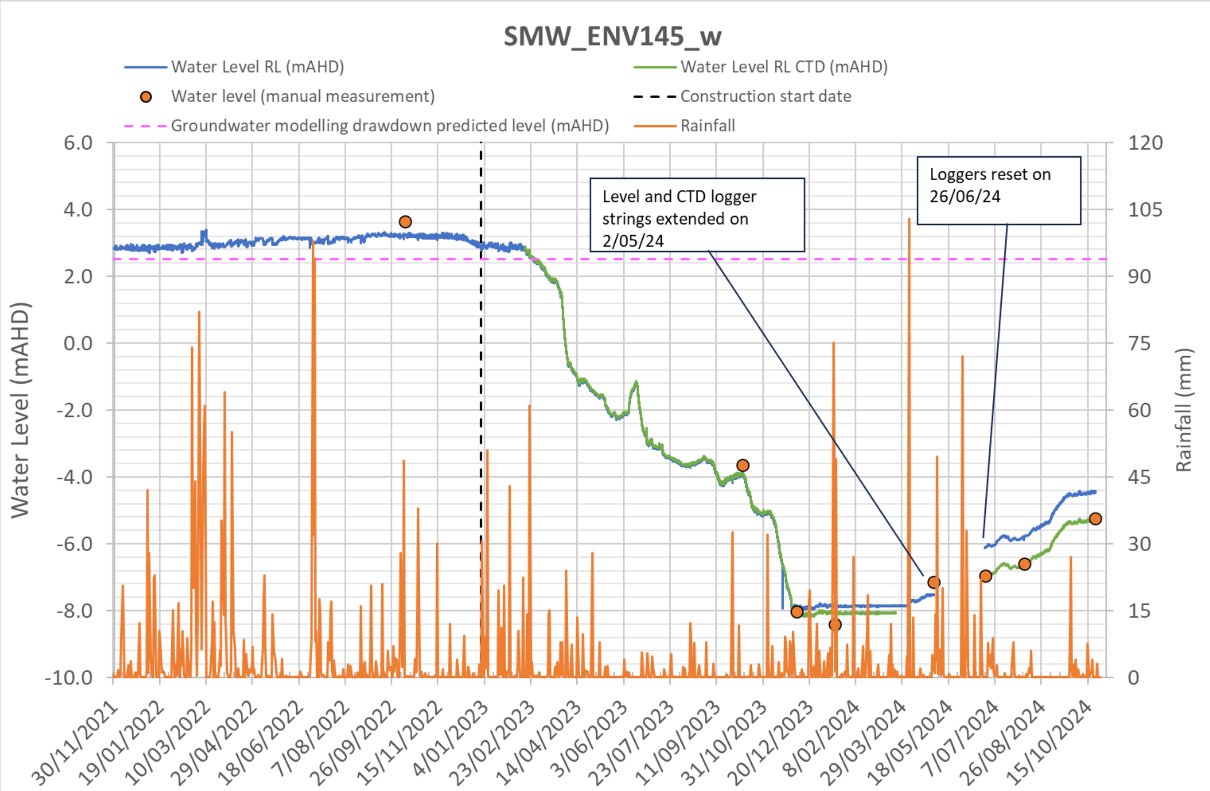
19/07/2024
7/09/2024
27/10/2024

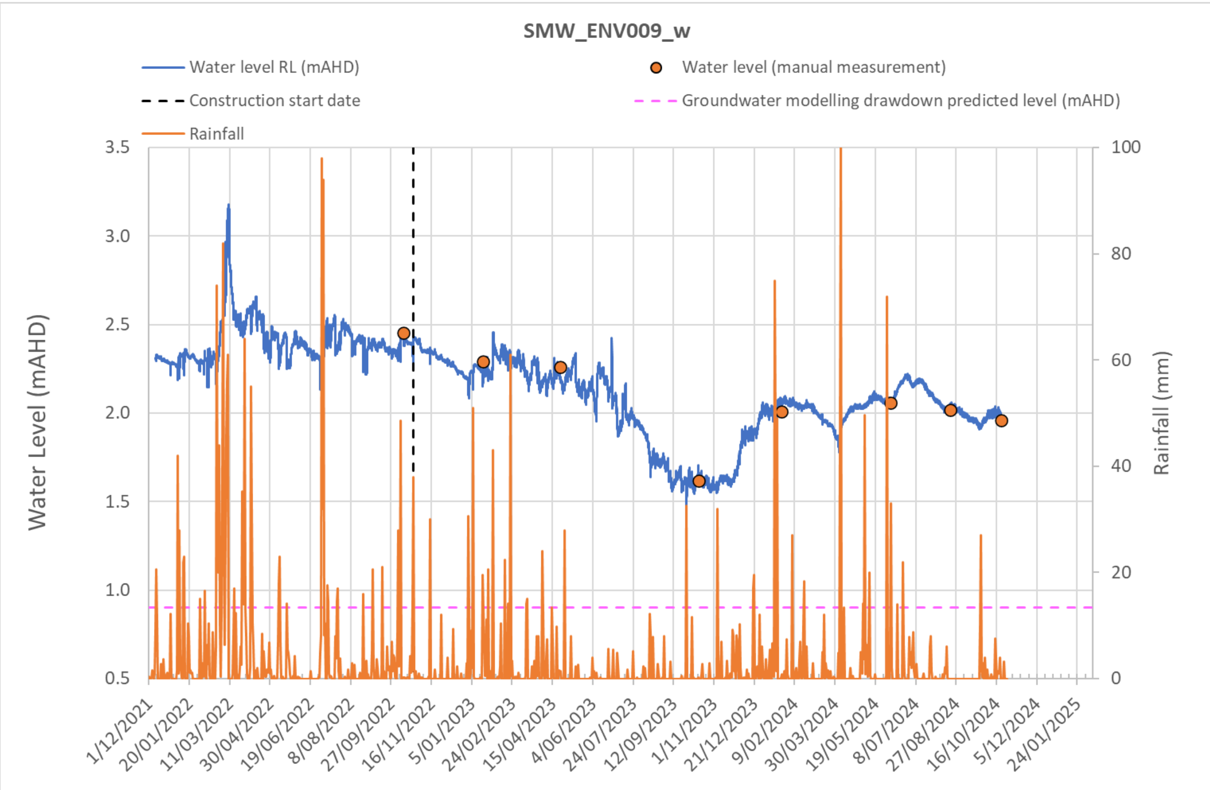
Appendix C – Hydrographs



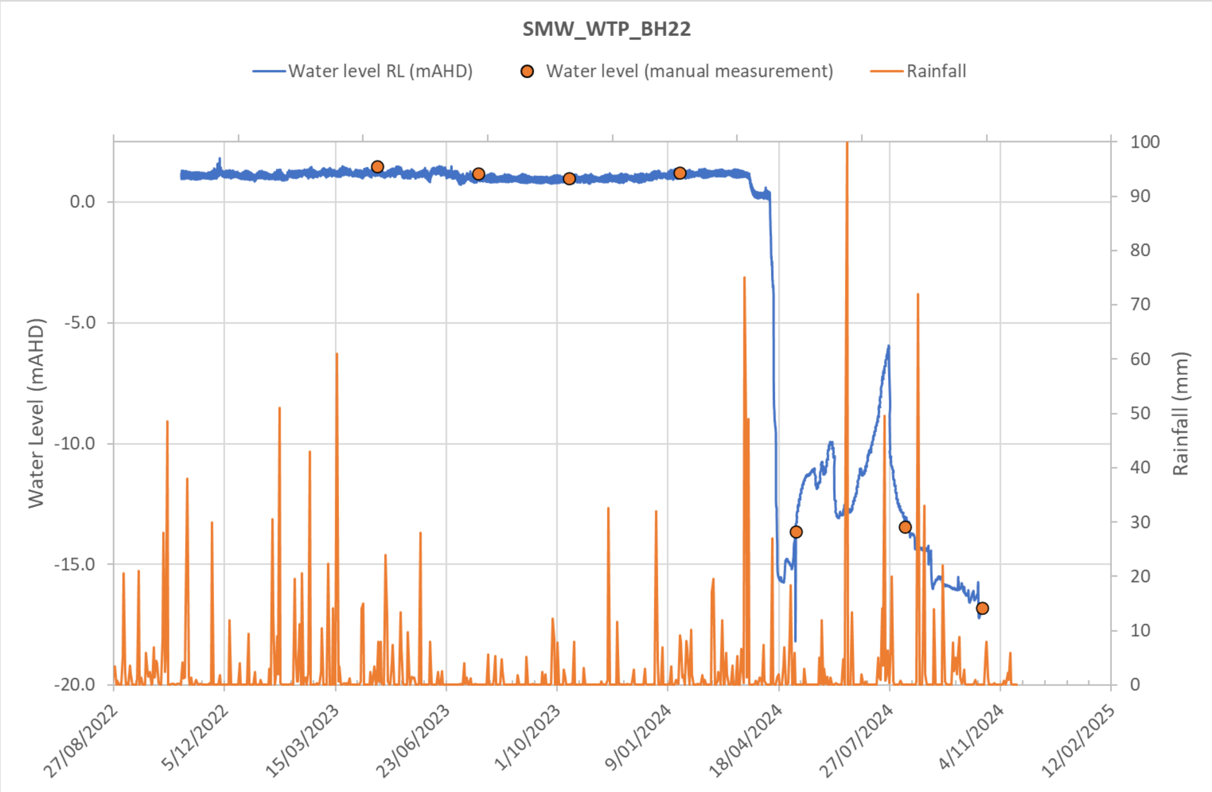


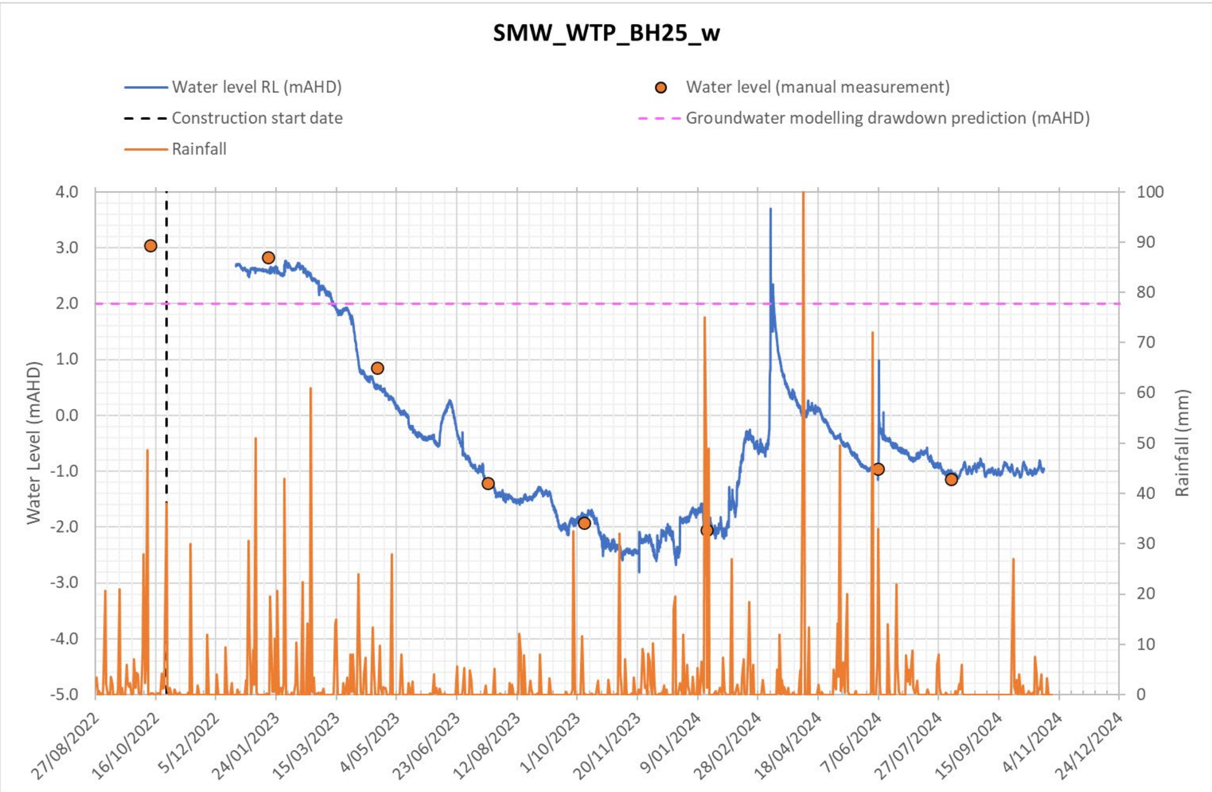
Appendix C – Hydrographs



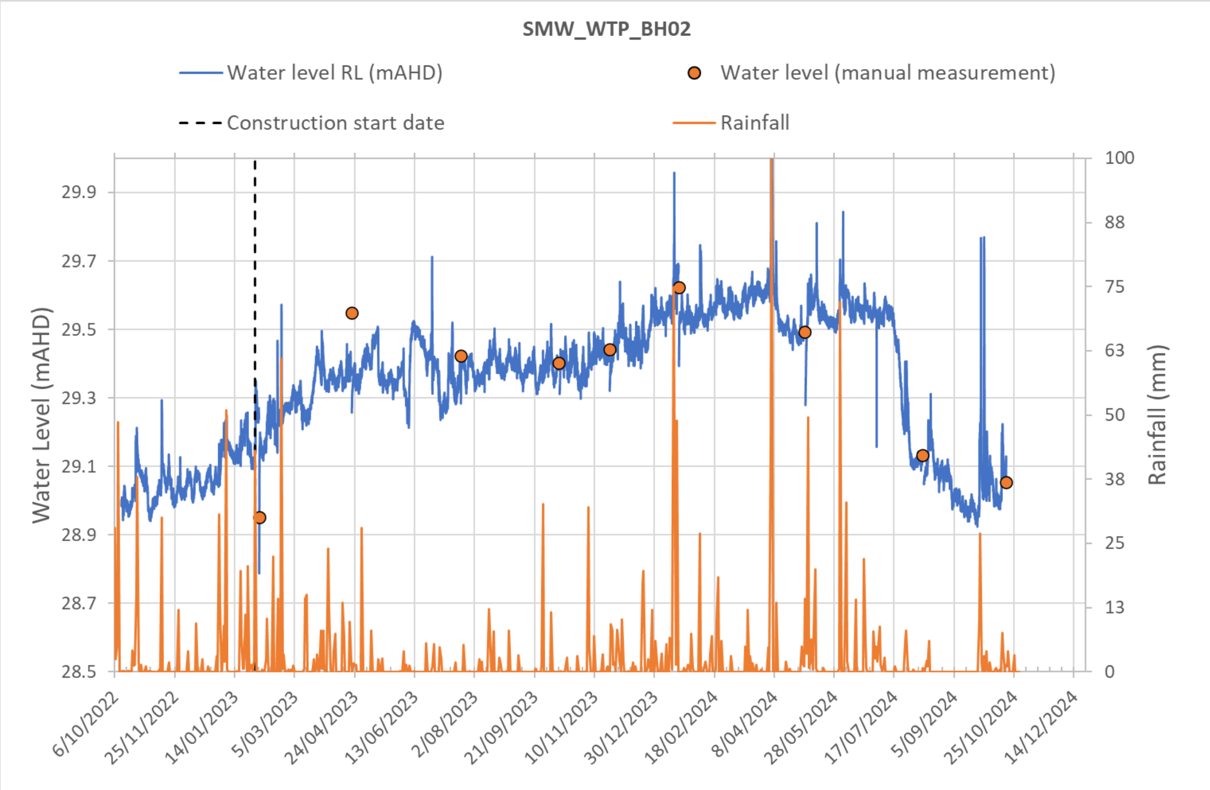


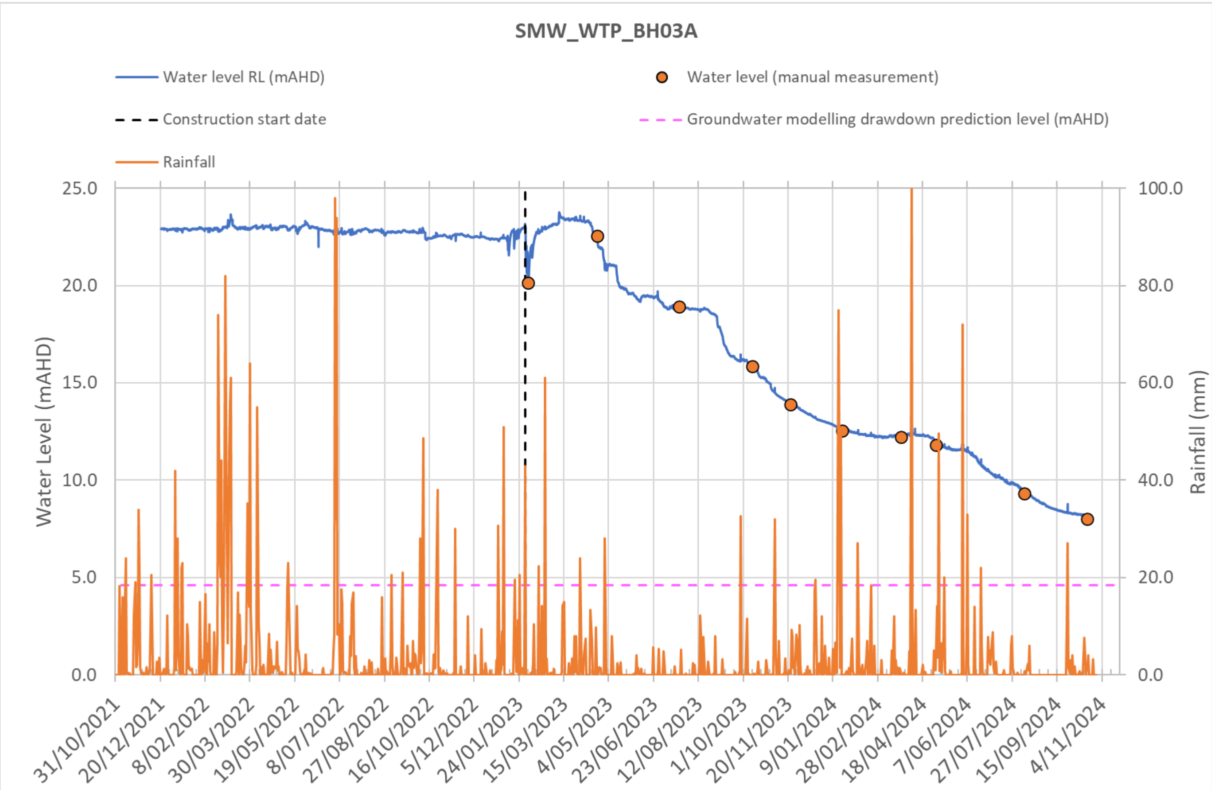
Appendix C – Hydrographs





Appendix C – Hydrographs





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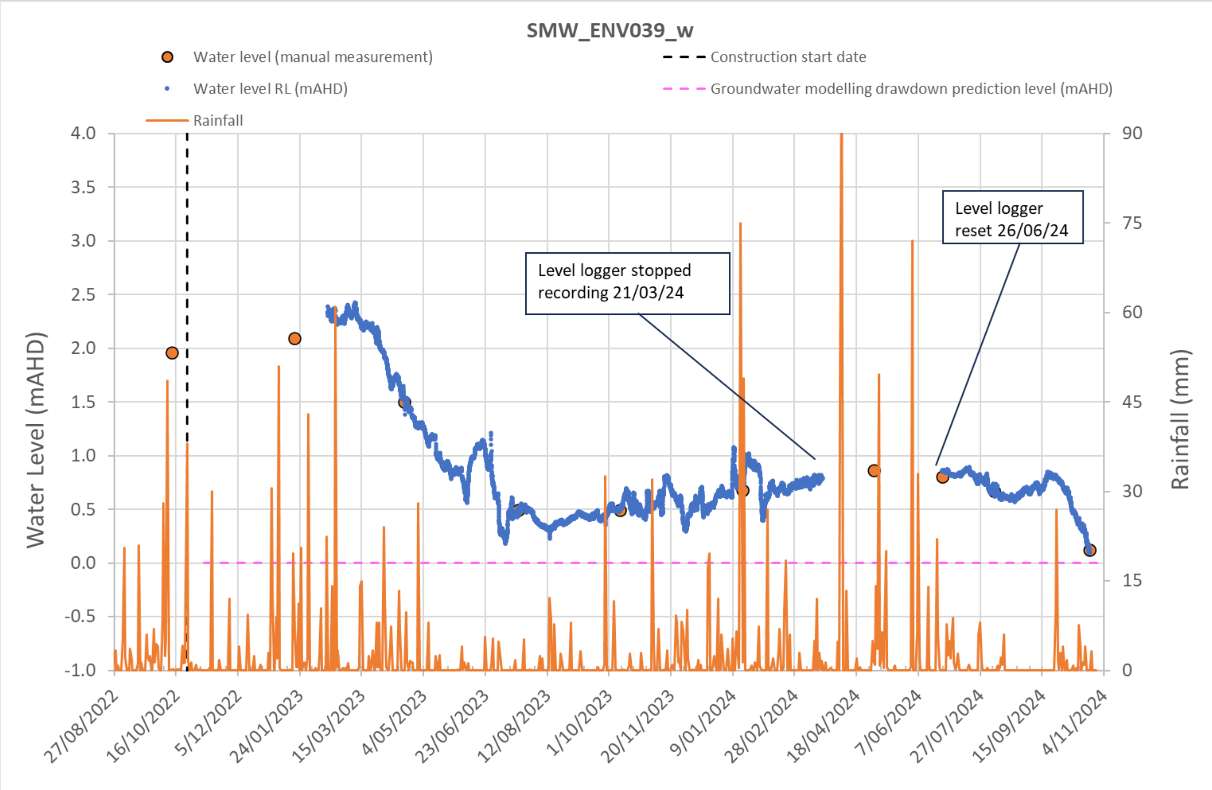
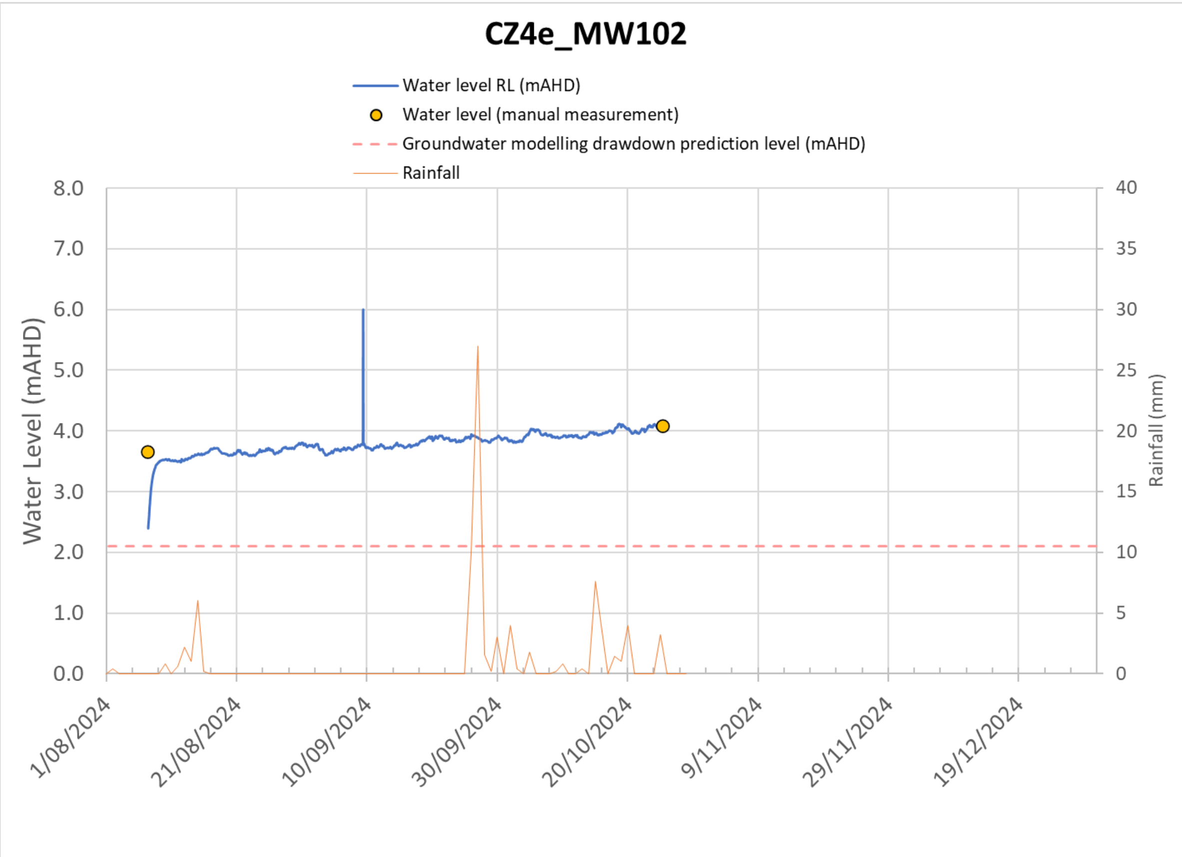
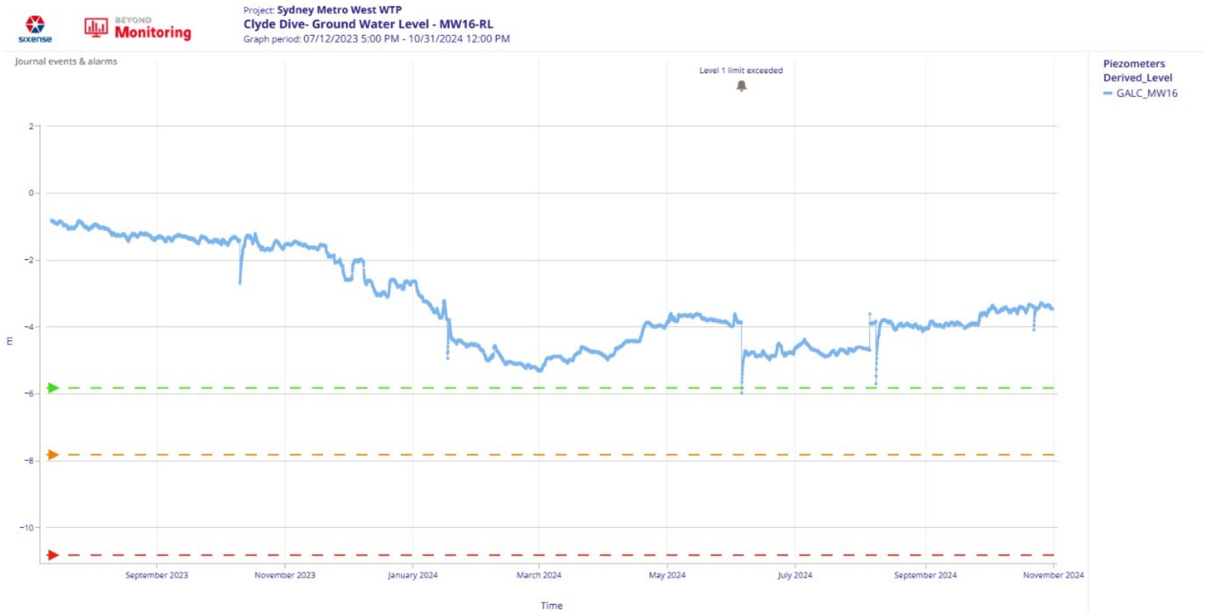
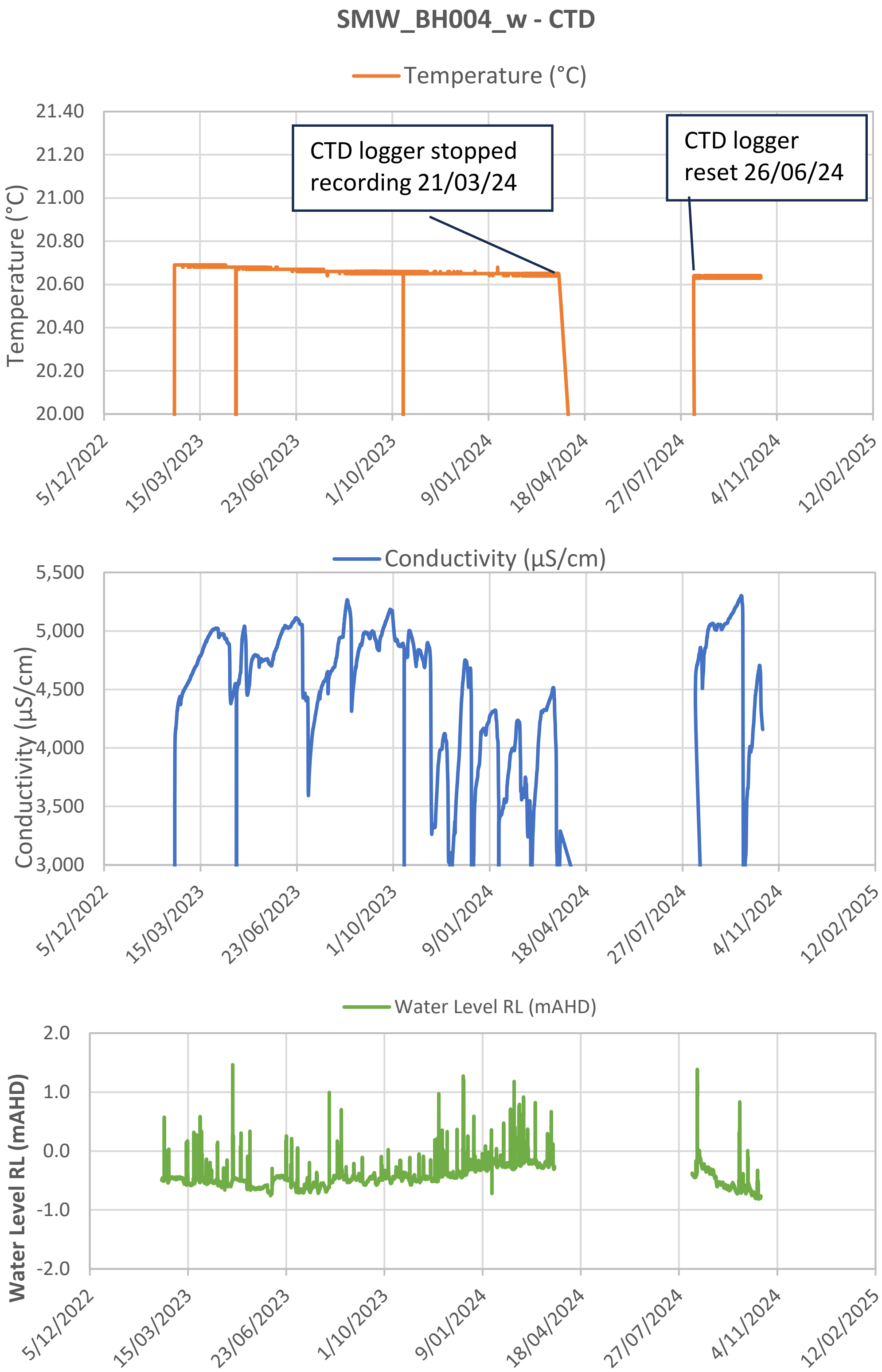
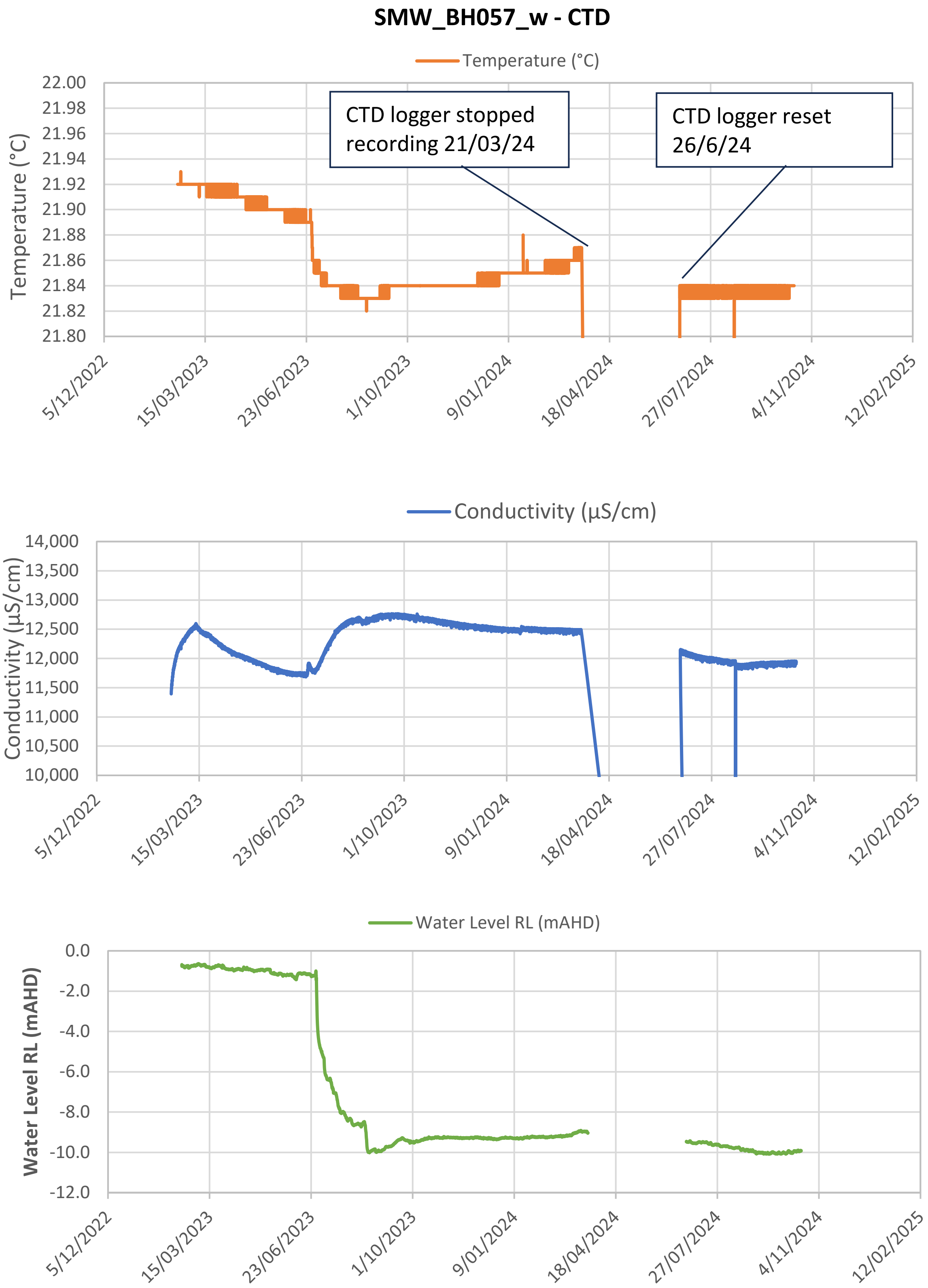


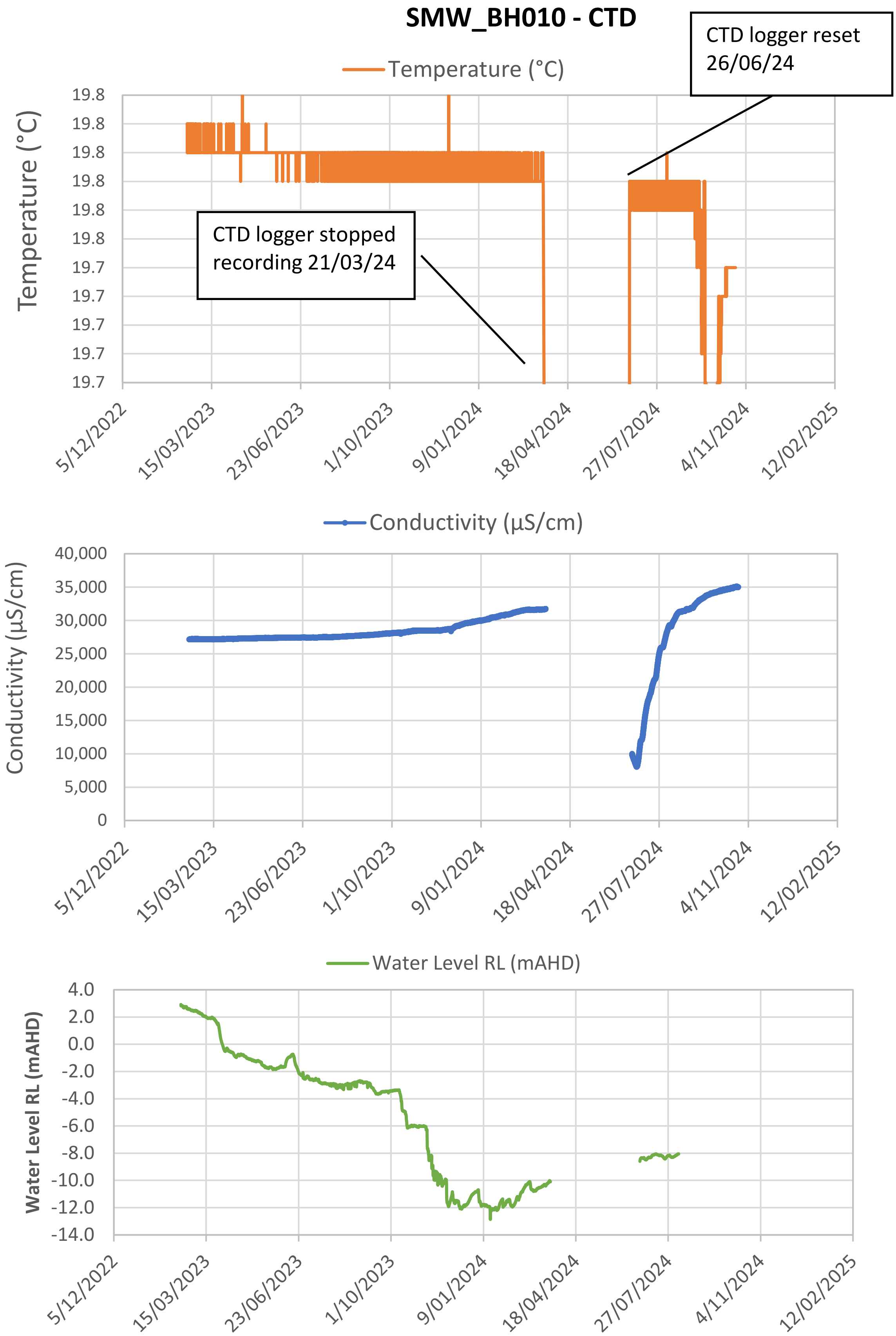


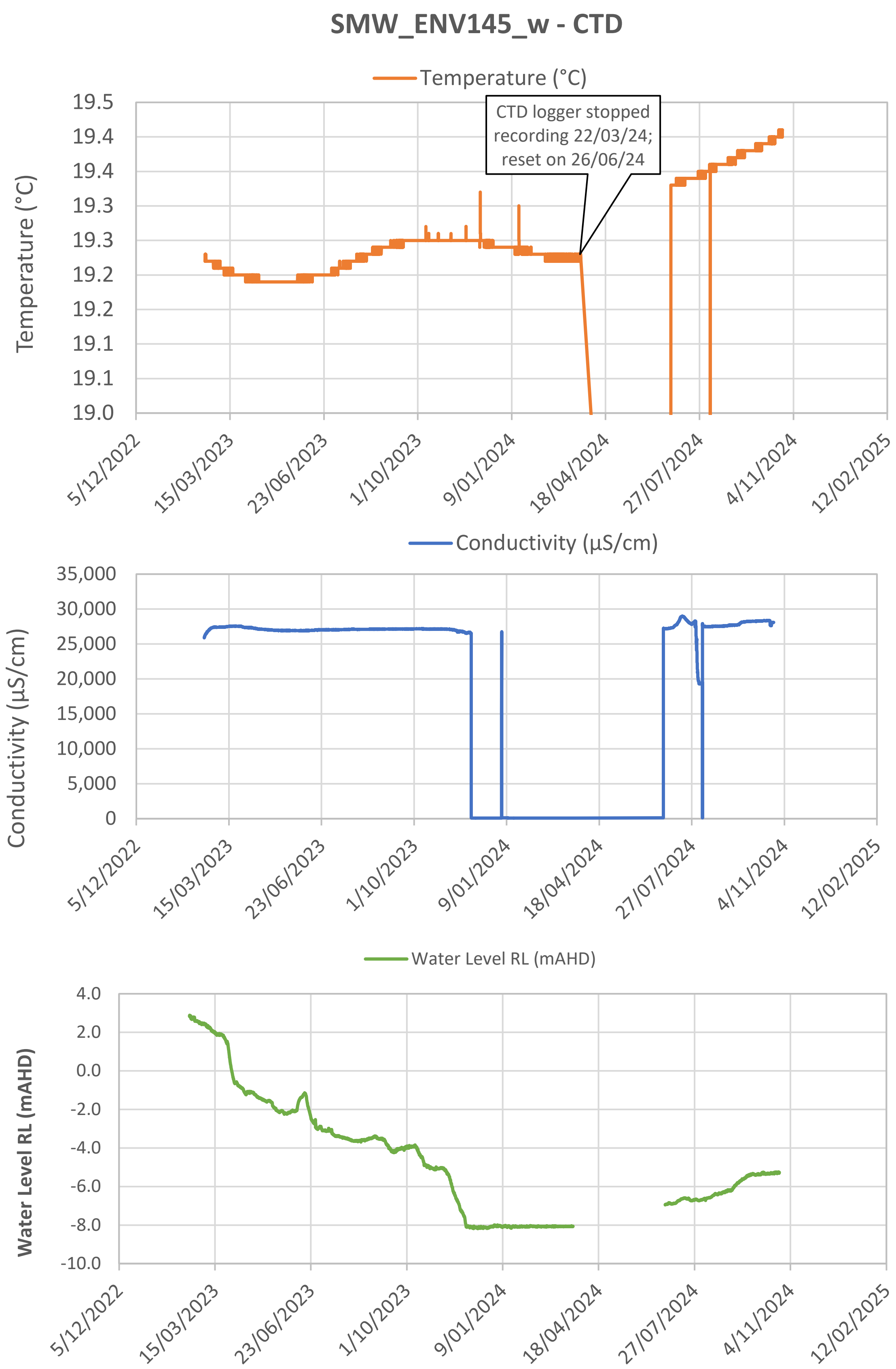
Appendix C – Hydrographs




SMW_BH004_w - CTD
Temperature (°C)
Temperature (°C)
21.40
21.20
21.00
20.80
20.60
20.40
20.20
20.00
CTD logger stopped recording 21/03/24
CTD logger reset 26/06/24
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Conductivity (µS/cm)
Conductivity (µS/cm)
5,500
5,000
4,500
4,000
3,500
3,000
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Water Level RL (mAHD)
Water Level RL (mAHD)
2.0
1.0
0.0
-1.0
-2.0
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025


SMW_BH057_w - CTD
Temperature (°C)
Temperature (°C)
22.00
21.98
21.96
21.94
21.92
21.90
21.88
21.86
21.84
21.82
21.80
CTD logger stopped recording 21/03/24
CTD logger reset 26/6/24
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Conductivity (µS/cm)
Conductivity (µS/cm)
14,000
13,500
13,000
12,500
12,000
11,500
11,000
10,500
10,000
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Water Level RL (mAHD)
Water Level RL (mAHD)
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025


SMW_BH010 - CTD
CTD logger reset 26/06/24
Temperature (°C)
19.8
19.7
CTD logger stopped recording 21/03/24
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Conductivity (µS/cm)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Water Level RL (mAHD)
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0


SMW_ENV145_w - CTD
Temperature (°C)
CTD logger stopped recording 22/03/24; reset on 26/06/24
19.5
19.4
19.4
19.3
19.3
19.2
19.2
19.1
19.1
19.0
Temperature (°C)
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Conductivity (µS/cm)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Conductivity (µS/cm)
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025
Water Level RL (mAHD)
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
Water Level RL (mAHD)
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024
27/07/2024
4/11/2024
12/02/2025

APPENDIX D – FIELD DATA SHEETS

August 2024 GME

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ1_BH13
Job No:	SC210108.03	**Date:**	6/8/2024 08:41
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.834146,151.028244
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	3.52	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[1] (L)	21.63
Total Depth of Well (TD in m BTOC)	9.7	Minium Purge Volume[2]	64.89
Height of Standing Water Column (m)	6.18	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
6/8	08:54	0.2		3.75	6.16	25,446	-84.6	3.14	34.9			16,600	15.9		
6/8	08:57	0.5	0.15	3.9	6.11	16,822	-38.8	3.71	44			16,828.5	16.1		
6/8	09:00	0.7	0.1	3.99	6.16	25,916	-8.8	4.71	52.4			16,848	16.1		
6/8	09:03		0.9	4.5	6.17	25,941	-4.3	4.95	55.3			16,874	16.1		
6/8	09:06	1	0.33	4.12	6.18	25,930	-4.3	5.02	57.4			16,854	16.2		

Other Observations Dark grey, no odour,

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ1_BH13			
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Spraypainted blue			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[1] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW02
Job No:	SC210108.03	**Date:**	7/8/2024 07:37
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.82865,151.026623
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.24	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water³ (L)	13.09
Total Depth of Well (TD in m BTOC)	5.98	Minium Purge Volume⁴	39.27
Height of Standing Water Column (m)	3.74	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.8	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☑ Yes					At L				☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
7/8	07:45	0.3		2.4	5.24	20,982	78.5	0.52	5.6			13,825	15.4		
7/8	07:48	0.5	0.1	2.46	5.25	21,405	74.5	0.52	5.6			13,903	14.8		
7/8	07:51	0.6	0.05	2.55	5.24	21,227	66.6	0.81	65.1			13,728	15		
7/8	07:54	0.8	0.1	2.65	5.22	20,888	56.5	1	10.9			13,520	16.2		
7/8	07:57	1.1	0.1	2	5.21	20,465	46.7	1.17	13			13,273	16.7		
7/8	08:01	1.5	0.13	2.93	5	19,971	41.2	1.68	18.3			12,954.5	16		
7/8	08:04	2	0.25	3.5	5.02	19,715	35.1	1.92	20.9			12,792	16		
7/8	08:07	2.1	0.05	3.12	4.95	19,287	29.3	2.14	23.2			12,486	15.9		
7/8	08:10	2.5	0.2	3.13	4.93	19,108	23.3	2.27	24.6			12,369.5	15.8		
7/8	08:13	2.6	0.03	3.16	4.91	18,865	15.6	2.37	25.6			12,213	15.3		
7/8	08:16	2.9	0.15	3.2	4.87	18,586	11	2.43	26.1			12,090	15.8		
Other Observations	Clear, savoury/popcorny odour, colourless														

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ4e_MW02			
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	String installed to 5.5m			

PHOTOS (IF TAKEN)

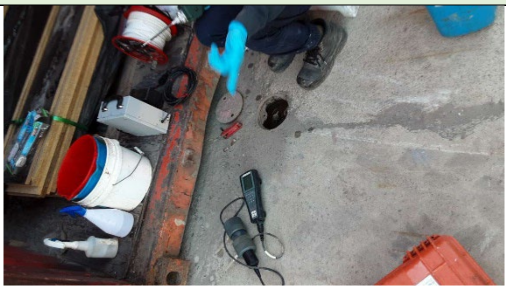

Photo1: Area

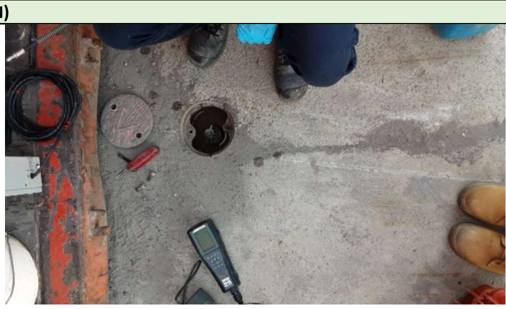

Photo 2: Bore condition

³ *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

² *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

³ *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW03
Job No:	SC210108.03	**Date:**	7/8/2024 08:57
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.828357,151.027568
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	1.43	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[5] (L)	9.905
Total Depth of Well (TD in m BTOC)	4.26	Minium Purge Volume[6]	29.715
Height of Standing Water Column (m)	2.83	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.6	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
7/8	09:01	0.01		1.54	5.7	5,766	132.9	2.12	21.7			3,698	15.9		
7/8	09:04	0.6	0.3	1.67	5.61	5,536	177.5	2.16	22.3			3,601	16.3		
7/8	09:07	1	0.2	1.79	5.56	5,525	205.8	2.1	21.8			3,588	16.3		
7/8	09:10	1.6	0.3	1.91	5.55	5,514	213	2.21	23.1			3,581.5	16.3		
7/8	09:13	2	0.2	2.4	5.54	5,488	224.4	2.25	23.3			3,568	16.3		
7/8	09:16	2.3	0.15	2.16	5.52	5,467	220.3	2.36	24.4			3,555.5	16.2		

Other Observations: Yellow,copper , brown with no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ4e_MW03			

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment:

PHOTOS (IF TAKEN)

Photo1: Area	**Photo 2: Bore condition**

[5] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5_MW09
Job No:	SC210108.03	**Date:**	6/8/2024 14:11
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.831865,151.022563
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	0.84	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[7] (L)	14.49
Total Depth of Well (TD in m BTOC)	4.98	Minium Purge Volume[8]	43.47
Height of Standing Water Column (m)	4.14	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	32	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
6/8	14:17	0.3		0.98	5.61	10,981	65.2	1.69	18.4			1.72	18.7		
6/8	14:20	1	0.35	1.17	5.59	10,886	53.6	1.63	17.5			7,065	17.2		
6/8	14:23	1.4	0.2	1.17	5.59	10,792	43.2	1.52	16.3			7,013	17		
6/8	14:26	2	0.3	1.24	5.59	10,753	41.1	1.5	16.1			6,987	17		
6/8	14:29	2.3	0.1	1.26	5.59	10,733	38.5	1.43	15.4			6,968	17		

Other Observations Copper br, cloudy, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ5_MW09	QC01	QC01	
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[7] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

A Montrose Environmental Company

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW16
Job No:	SC210108.03	**Date:**	8/8/2024 08:56
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.82448,151.021802
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Bailer
Water Level Depth (WL in m BTOC)	14.09	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[9] (L)	17.675
Total Depth of Well (TD in m BTOC)	19.14	Minium Purge Volume[10]	53.025
Height of Standing Water Column (m)	5.05	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	42	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☑ Yes	At L	☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
8/8	09:25	3.5			6.85	15,660	140.6	1.46	15.1			10,179	14.7		

Other Observations	Dark grey, extremely turbid, slight sulfuric odour, slight possible sheen

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	GALC-MW16			
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Well has been cut down, surrounding concrete moved, gatic shifty _w			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[9] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW16
Job No:	SC210108.03	**Date:**	8/8/2024 09:44
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.82452,151.021935
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	10.37	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[11] (L)	2.1
Total Depth of Well (TD in m BTOC)	10.97	Minium Purge Volume[12]	6.3
Height of Standing Water Column (m)	0.6	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	49	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Also cutdown and gatic semi loose, no well cap - duct tape			

PHOTOS (IF TAKEN)

Photo1: Area

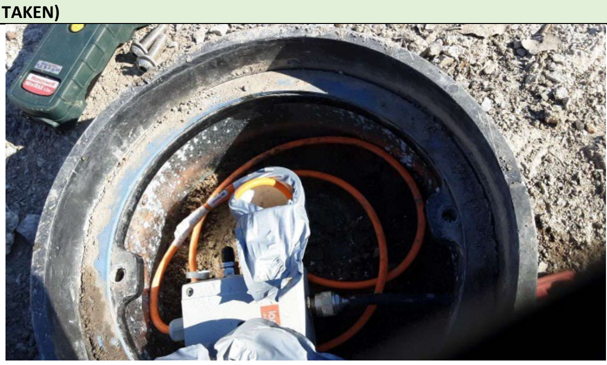

Photo 2: Bore condition

[11] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW17
Job No:	SC210108.03	**Date:**	8/8/2024 10:18
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.824089,151.021718
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.19
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	17.74	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[13] (L)	14.875
Total Depth of Well (TD in m BTOC)	21.99	Minium Purge Volume[14]	44.625
Height of Standing Water Column (m)	4.25	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	7.8	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☑ Other: :
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

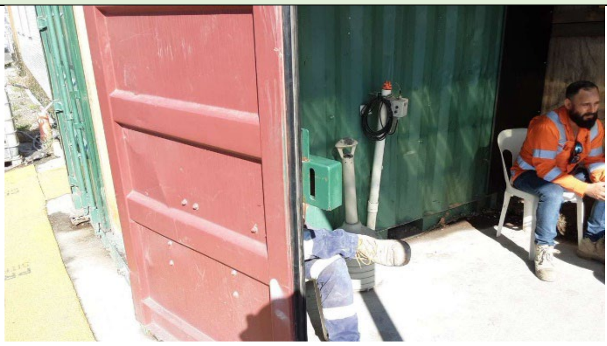

Photo1: Area

Photo 2: Bore condition

[13] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW18
Job No:	SC210108.03	**Date:**	8/8/2024 10:54
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.825693,151.021272
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.43
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	1.79	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[15] (L)	15.085
Total Depth of Well (TD in m BTOC)	6.1	Minium Purge Volume[16]	45.255
Height of Standing Water Column (m)	4.31	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.1	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☑ Yes			At L						☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
8/8	11:03	0.3		1.99	6.11	7,961	-105.2	0.44	4.6			5,135	16.7		
8/8	11:06	0.5	0	2.22	6.07	7,560	-115.3	0.45	4.8			4,914	16.7		
8/8	11:09	1	0.25	2.35	6.06	7,532	-120.8	0.6	6.4			4,894	16.8		
8/8	11:12	1.2	0.1	2.46	6.05	7,507	-124.8	0.76	8			4,881	16.5		
8/8	11:15	1.5	0.15	2.6	6.04	7,468	-130.7	1.01	10.8			4,849	17		
8/8	11:18	1.8	0.15	2.73	6.03	7,453	-134.7	1.24	13.2			4,842	17		
8/8	11:21	2.1	0.1	2.88	6.02	7,450	-139.1	1.5	15.9			4,842	17		
8/8	11:24	2.5	0.2	3	6.01	7,756	-142.2	1.63	17.3			5,590	17.3		
8/8	11:26	2.6	0.1	3.13	5.72	9,019	-133	1.87	20.2			5,856	17.5		
8/8	11:30	3	0.1	3.26	5.82	8,412	-147.8	2.03	21.8			5,414	17.4		
8/8	11:33	3.2	0.1	3.39	5.98	7,799	-157.2	1.99	21.3			5,057	17.3		
8/8	11:36	3.5	0.15	3.52	5.98	7,622	-162	1.95	20.8			4,940	17.3		
8/8	11:39	3.8	0.15	3.6	5.98	7,560	-165.2	1.94	20.8			4,901	17.3		
Other Observations	Sulfuric odour, slightly grey turbid, then clear anc colourless														

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☐ Yes ☑ No ☐ Other:	
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:	
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate	
	GALC-MW18				
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC				
Comment					

PHOTOS (IF TAKEN)

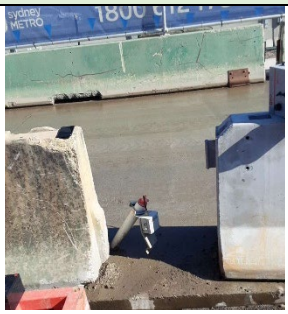

Photo1: Area | **Photo 2: Bore condition**

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[15] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2$ + 0.3 x ($\pi r(annulus)^2$ - $\pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW26
Job No:	SC210108.03	**Date:**	12/8/2024 13:58
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814801,151.005547
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.2
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition		Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	10.38	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[17] (L)	66.71
Total Depth of Well (TD in m BTOC)	29.44	Minium Purge Volume[18]	200.13
Height of Standing Water Column (m)	19.06	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.8	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☐ Yes				At L						☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No		**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

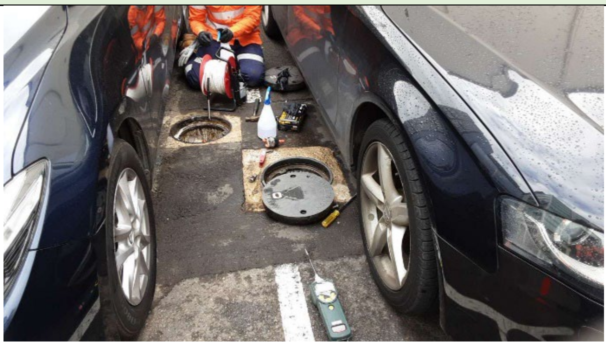

Photo1: Area

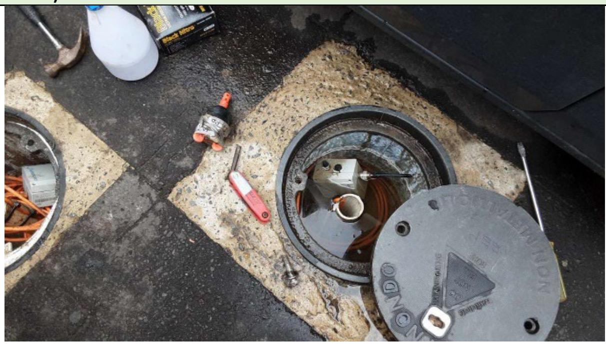

Photo 2: Bore condition

[17] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW26A
Job No:	SC210108.03	**Date:**	12/8/2024 13:52
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814434,151.00576
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition		Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	4.62	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[19] (L)	17.22
Total Depth of Well (TD in m BTOC)	9.54	Minium Purge Volume[20]	51.66
Height of Standing Water Column (m)	4.92	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2.2	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes			At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

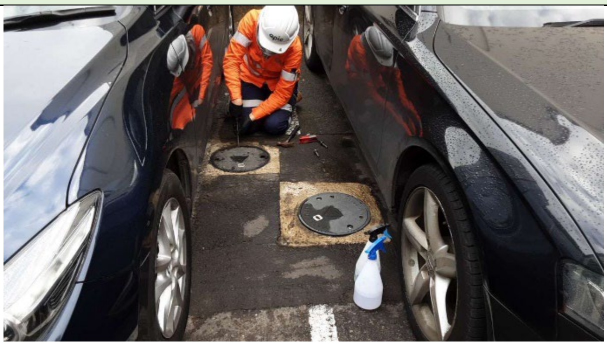

Photo1: Area

Photo 2: Bore condition

[19] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW31
Job No:	SC210108.03	**Date:**	12/8/2024 10:29
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814032,151.004088
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.15
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	9.58	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[21] (L)	59.22
Total Depth of Well (TD in m BTOC)	26.5	Minium Purge Volume[22]	177.66
Height of Standing Water Column (m)	16.92	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	5.2	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[21] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2$ + 0.3 x ($\pi r(annulus)^2$ - $\pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW32
Job No:	SC210108.03	**Date:**	12/8/2024 10:23
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813986,151.003222
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	8.17	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[23] (L)	41.965
Total Depth of Well (TD in m BTOC)	20.16	Minium Purge Volume[24]	125.895
Height of Standing Water Column (m)	11.99	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	3	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Savoury odour?			

PHOTOS (IF TAKEN)

Photo1: Area

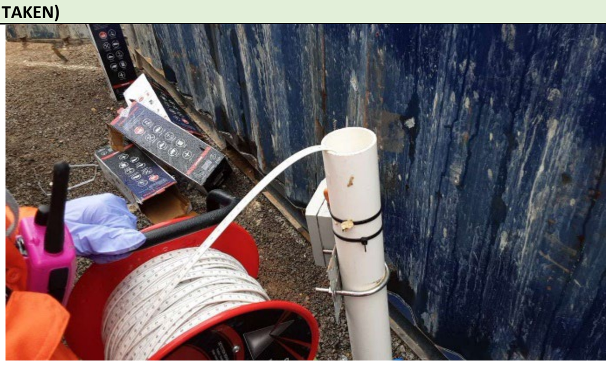

Photo 2: Bore condition

[23] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW33
Job No:	SC210108.03	**Date:**	12/8/2024 10:14
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814189,151.003476
Weather:	Overcast and slight drizzle		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.15
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	8.88	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[25] (L)	82.67
Total Depth of Well (TD in m BTOC)	32.5	Minium Purge Volume[26]	248.01
Height of Standing Water Column (m)	23.62	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2.5	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L				☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

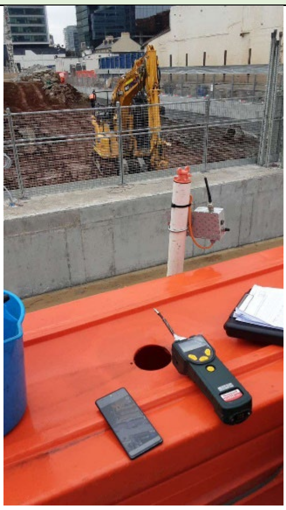

Photo1: Area

Photo 2: Bore condition

[25] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW38
Job No:	SC210108.03	**Date:**	8/8/2024 13:47
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.809719,150.988553
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.55
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	17.62	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[27] (L)	66.675
Total Depth of Well (TD in m BTOC)	36.67	Minium Purge Volume[28]	200.025
Height of Standing Water Column (m)	19.05	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.5	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☐ Yes				At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

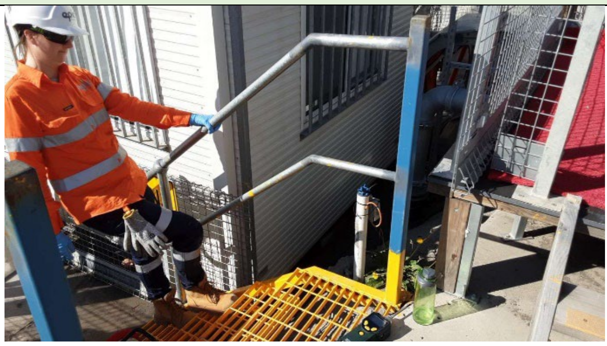

Photo1: Area

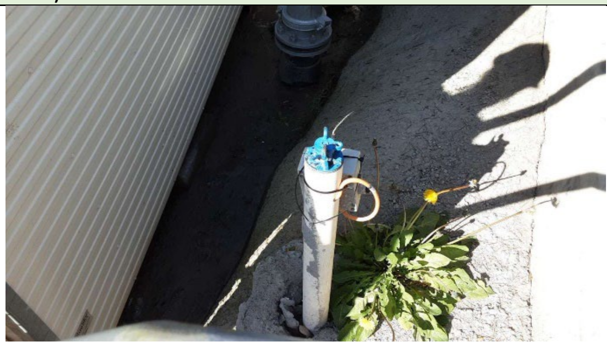

Photo 2: Bore condition

[27] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*
[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*
[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW47
Job No:	SC210108.03	**Date:**	8/8/2024 14:19
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.809173,150.987585
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	13.91	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[29] (L)	6.37
Total Depth of Well (TD in m BTOC)	15.73	Minium Purge Volume[30]	19.11
Height of Standing Water Column (m)	1.82	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes					At L					☐ No				
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X ☐ BarroTroll ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Smallwell head			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[29] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW54
Job No:	SC210108.03	**Date:**	9/8/2024 14:39
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.810189,150.992523
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.11
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	2.06	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[31] (L)	10.115
Total Depth of Well (TD in m BTOC)	4.95	Minium Purge Volume[32]	30.345
Height of Standing Water Column (m)	2.89	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.6	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger ☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[31] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5a_MW102
Job No:	SC210108.03	**Date:**	2/9/2024 09:48
Recorded By:	Jenny Law	**Lat / Long:**	-33.829773,151.022081
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.89
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	3.73	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[33] (L)	13.79
Total Depth of Well (TD in m BTOC)	7.67	Minium Purge Volume[34]	41.37
Height of Standing Water Column (m)	3.94	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	10	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
2/9	10:15	0.1		3.76	7.59	27,778	-230.2		0			183,235	17	Black	Hydrocarbon smell
2/9	10:18	1	0.45	3.77	7.58	28,688	-233		0			18,655	16.7	as previous	as previous
2/9	10:21	2	0.5	3.77	7.56	28,473	-229.5		-0.1			18,362.5	16.3	as previous	as previous
2/9	10:24	2.8	0.4	3.77	7.41	26,302	-221.4	0.01	0.1			16,588		Getting clearer	as previous
2/9	10:27	3.2	0.2	3.78	7.31	21,298	-210	0.01	0.2			13,435	16.1	as previous	as previous
2/9	10:30	4	0.4	3.77	7.28	18,377	-202.3	0.01	0.1			12,493	15.9	as previous	as previous
2/9	10:33	4.8	0.4	3.77	7.27	17,007	-197.2		0			11,056	15.8	as previous	as previous

Other Observations: Black water got clearer during purging slight hydrocarbon smell

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:	
Gauged	☑ Yes ☐ No	**Sampling Method:**		
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	Other	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[33] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5a_MW103
Job No:	SC210108.03	**Date:**	2/9/2024 07:43
Recorded By:	Jenny Law	**Lat / Long:**	-33.829583,151.022575
Weather:	Sunny and windy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.69
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	3.53	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[35] (L)	18.865
Total Depth of Well (TD in m BTOC)	8.92	Minium Purge Volume[36]	56.595
Height of Standing Water Column (m)	5.39	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	12.1	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
2/9	08:16	0.01		3.57	6.53	33,175	-110.5	0.43	5.1			21,833	16.5	Clear	
2/9	08:21	0.5	0.1	3.57	6.56	33,820	-111.2	0.39	4.5			21,983	16.3	as previous	as previous
2/9	08:24		0	3.58	6.58	33,835	-118.4	0.32	3.7			21,996	16.3	as previous	as previous
2/9	08:27		0	3.58	6.58	33,839	-124.3	0.26	3			21,996	16.2	as previous	as previous
2/9	08:30		0	3.58	6.59	33,884	-128	0.25	2.9			22,028	16.1	as previous	as previous
2/9	08:33	1.9	0.95	3.58	6.59	33,884	-130.3	0.22	2.5			22,015.5	16.2	Grey brown	as previous
2/9	08:36	2.1	0.1	3.58		33,938	-131.7	0.21	2.5			22,048	16.2	as previous	as previous
2/9	08:39	2.8	0.35	3.59	6.58	22,009	-132.9	0.19	2.3			22,022	16.3	as previous	as previous
2/9	08:42	2.9	0.03	3.59	6.58	33,937	-132.7	0.2	2.3			22,054	16.2	as previous	as previous
2/9	08:46	3.2	0.1	3.59	6.53	33,862	-134	0.2	2.3			22,002	16.3	as previous	as previous
2/9	08:49	3.6	0.2	3.59	6.58	33,885	-134.1	0.21	2.4			22,041.5	16.2	as previous	as previous

Other Observations: Brown grey colour no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	Other	QC100	QC100	RS07
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[35] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_BH14
Job No:	SC210108.03	**Date:**	12/8/2024 08:56
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.821418,150.998495
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	4.87	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[37] (L)	3.815
Total Depth of Well (TD in m BTOC)	5.96	Minium Purge Volume[38]	11.445
Height of Standing Water Column (m)	1.09	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	5.5	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
12/8	09:04	0.2		4.94	7.01	568.1	115.8	4.85	49.7			364.65	16.6	as previous	as previous
12/8	09:07	0.5	0.15	4.99	6.69	501.7	154.5	4.47	45.8			326.65	16.8	as previous	as previous
12/8	09:10	0.7	0.1	5.02	6.56	492.6	166	4.31	44.5			320.45	16.9	as previous	as previous
12/8	09:13	1	0.15	5.5	6.5	492.8	169.8	3.93	40.4			319.8	16.8	as previous	as previous
12/8	09:16	1.1	0.05	5.7	6.47	491	171.8	3.9	40.4			319.8		as previous	as previous

Other Observations: Clear, colourless, odourless

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100	☐ Level TROLL 400	☐ Rugged BaroTROLL	☐ BarroTroll
	☐ Levelogger	☐ CT2X	☑ SCOUT2X	☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_BH14	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[37] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_BH15
Job No:	SC210108.03	**Date:**	12/8/2024 11:05
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813777,151.004902
Weather:	Cloudy, sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.06
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	4.95	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[39] (L)	17.64
Total Depth of Well (TD in m BTOC)	9.99	Minium Purge Volume[40]	52.92
Height of Standing Water Column (m)	5.04	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
12/8	11:17	0.01		5.15	5.48	993	150.5	0.59	5.9			643.5	16.5	as previous	as previous
12/8	11:20	0.02	0.01	5.22	5.46	1,013	144	0.59	6.1			663	16.7	as previous	as previous
12/8	11:23	0.4	0.19	5.36	5.44	1,020	125.9	0.72	7.1			663	16.8	as previous	as previous
12/8	11:26	1	0.3	5.53	5.41	1,012	123.5	0.65	6.7			656.5	16.9	as previous	as previous
12/8	11:29	1.5	0.17	5.64	5.39	994	125.3	0.56	5.8			643.5	17	as previous	as previous
12/8	11:32	1.9	0.2	5.8	5.38	982	123.9	0.66	6.9			637	17	as previous	as previous
12/8	11:35	2.1	0.1	5.9	5.36	981	123.7	0.76	8			637	17	as previous	as previous
12/8	11:38	2.7	0.3	6.03	5.35	976	122.8	0.92	9.5			637	17	as previous	as previous
12/8	11:41	2.9	0.1	6.16	5.34	968	121.3	1.07	11.1			617.5	17	as previous	as previous
12/8	11:44	3.1	0.1	6.26	5.34	957	119.8	1.16	12.1			624	16.9	as previous	as previous
12/8	11:48	3.3	0.05	6.44	5.33	943	117.9	1.29	13.4			630.5	16.8	as previous	as previous
12/8	11:51	3.5	0.1	6.56	5.35	995	107.3	1.32	13.6			663	16.7	as previous	as previous
12/8	11:54	3.8	0.15	6.61	5.38	967	84.5	1.35	13.8			637	16.2	as previous	as previous
12/8	11:57	4	0.1	6.67	5.36	978	93	1.4	14.3			643.5	16	as previous	as previous
12/8	12:00	4.2	0.1	6.74	5.39	984	79.7	1.43	14.4			630	15.5	as previous	as previous
12/8	12:03	4.4	0.1	6.78	5.61	1,078	-8.3	1.33	13.3			695	15.4	as previous	as previous
12/8	12:06	4.9	0.17	6.87	5.54	961	20.4	1.8	18.2			611	16.4	as previous	as previous
12/8	12:14	5	0.01	6.95	5.45	927	46.6	1.66	17.2			598	16.3	as previous	as previous
12/8	12:17	5.2	0.1	7.06	5.4	913	65.4	1.54	15.7			591.5	16.4	as previous	as previous
12/8	12:20	5.8	0.3	7.16	5.38	907	74.7	1.46	15			591.5	16.6	as previous	as previous
12/8	12:23	5.9	0.05	7.16	5.37	915	75.9	1.43	14.7			598	16.7	as previous	as previous

Other Observations Yellow brown colour/copper br, turbid, Intake depth slightly shifted by error at 12 , slight earthy odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_BH15	QC03	QC03	RS05
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Well slightly flooded, no well cap, silty bottom			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[39] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ADD_BH02
Job No:	SC210108.03	**Date:**	19/8/2024 07:16
Recorded By:	Jenny Law	**Lat / Long:**	-33.822557,151.021666
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.13
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Other
Water Level Depth (WL in m BTOC)	28.04	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[41] (L)	6.755
Total Depth of Well (TD in m BTOC)	29.97	Minium Purge Volume[42]	20.265
Height of Standing Water Column (m)	1.93	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	15.6	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes			At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other:	
Gauged	☑ Yes ☐ No	**Sampling Method:**		
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Flooded			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[41] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH002_w
Job No:	SC210108.03	**Date:**	12/8/2024 14:04
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.815254,151.005672
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.07
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Other
Water Level Depth (WL in m BTOC)	10.5	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[43] (L)	81.795
Total Depth of Well (TD in m BTOC)	33.87	Minium Purge Volume[44]	245.385
Height of Standing Water Column (m)	23.37	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.5	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations	

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well flooded, hydrocarbon odour and sheen on the flooded water			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[43] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2$ + 0.3 x ($\pi r(annulus)^2$ - $\pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_s
Job No:	SC210108.03	**Date:**	9/8/2024 08:15
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813111,151.00502
Weather:	Partly cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	4.65	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[45] (L)	23.66
Total Depth of Well (TD in m BTOC)	11.41	Minium Purge Volume[46]	70.98
Height of Standing Water Column (m)	6.76	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2.9	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
9/8	08:27	0.01		4.65	6.42	367.9	152.7	0.7	6.9			228.8	15.5	as previous	as previous
9/8	08:30	0.02	0.01	4.65	6.27	306	174.7	0.59	6			194.35	15.6	as previous	as previous
9/8	08:33	0.03	0.01	4.65	6.17	277	179.8	0.46	4.6			179.4	15.9	as previous	as previous
9/8	08:36	0.8	0.39	4.66	6.13	275.5	180.4	0.4	4.1			178.75	15.8	as previous	as previous
9/8	08:39	1.5	0.35	4.6	6.1	272.1	179.8	0.35	3.5			177.45	15.9	as previous	as previous
9/8	08:42	1.6	0.03	4.66	6.09	271.8	179.2	0.35	3.6			176.8	16	as previous	as previous
9/8	08:45	1.9	0.15	4.6	6.06	275.5	178.8	0.38	4			183.3	16	as previous	as previous

Other Observations Clear colour no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH004_s	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	LL reset			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[45] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_w
Job No:	SC210108.03	**Date:**	9/8/2024 07:49
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813097,151.005564
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.09
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	9.05	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[47] (L)	51.625
Total Depth of Well (TD in m BTOC)	23.8	Minium Purge Volume[48]	154.875
Height of Standing Water Column (m)	14.75	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2.8	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☑ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Ll levellogger stopped recording on the 6/7/24 :(, reset Ct2x also stopped recordingbin feb, reset today Clay in well head			

PHOTOS (IF TAKEN)

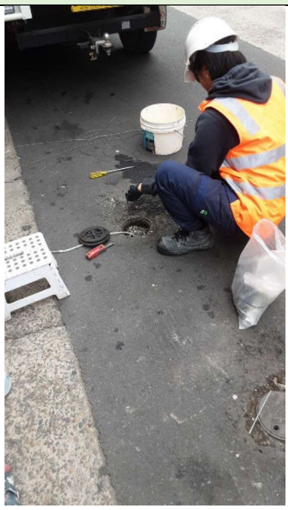

Photo1: Area

Photo 2: Bore condition

47 *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

2 *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

3 *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH008_w
Job No:	SC210108.03	**Date:**	8/8/2024 14:42
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.809567,150.990969
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.15
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	14.18	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[49] (L)	12.6
Total Depth of Well (TD in m BTOC)	17.78	Minium Purge Volume[50]	37.8
Height of Standing Water Column (m)	3.6	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	3	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment: Well flooded on gatic removal, ueed syringe to remove water before dipping

PHOTOS (IF TAKEN)

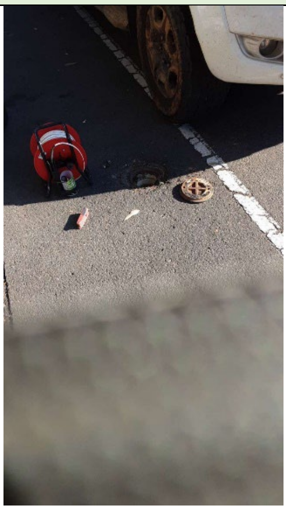

Photo1: Area

Photo 2: Bore condition

[49] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH010
Job No:	SC210108.03	**Date:**	7/8/2024 09:47
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.829787,151.027499
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.08
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	12.24	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[51] (L)	53.095
Total Depth of Well (TD in m BTOC)	27.41	Minium Purge Volume[52]	159.285
Height of Standing Water Column (m)	15.17	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	3.3	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes			At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☑ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[51] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_s
Job No:	SC210108.03	**Date:**	19/8/2024 07:53
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.819751,151.02222
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.19
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.04	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[53] (L)	8.085
Total Depth of Well (TD in m BTOC)	4.35	Minium Purge Volume[54]	24.255
Height of Standing Water Column (m)	2.31	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	16	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☑ Yes				At L					☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
19/8	08:07	0.3		2.14	6.02	608	123.5	3.61	37.7			390	18	as previous	as previous
19/8	08:10	0.5	0.1	2.04	5.72	593	132.4	2.87	29.4			383	17.7	as previous	as previous
19/8	08:13	0.6	0.03	2.04	5.55	586	136.7	2.15	22.1			383	17.7	as previous	as previous
19/8	08:16	0.8	0.1	2.04	5.48	584	139.6	2.18	22.7			377	17.6	as previous	as previous
19/8	08:19	1	0.1	2.04	5.43	584	143.1	2.17	22.3			377	17.6	as previous	as previous
19/8	08:22	1.3	0.15	2.04	5.41	584	147.3	1.94	20			377		as previous	as previous
19/8	08:27	1.7	0.08	2.04	5.39	582	151.8	1.89	19.6			377	17.7	as previous	as previous
19/8	08:30	1.9	0.1	2.04	5.4	581	153.3	1.76	18.3			377	17.8	as previous	as previous
Other Observations			Slightly copper br, slightly cloudy, no odour												

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_s	QC05	QC05	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[53] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_w
Job No:	SC210108.03	**Date:**	19/8/2024 09:10
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.819798,151.022229
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.23
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	13.41	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[55] (L)	47.915
Total Depth of Well (TD in m BTOC)	27.1	Minium Purge Volume[56]	143.745
Height of Standing Water Column (m)	13.69	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	11	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☑ Yes	At L	☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
19/8	09:47	3.5			5.79	7,089	-146.5	2.09	22.6			4,634.5	19.4	as previous	as previous

Other Observations	Slightly cloudy, colourless, sulfuric odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☑ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Strong sulphiric odour from purged water			

PHOTOS (IF TAKEN)

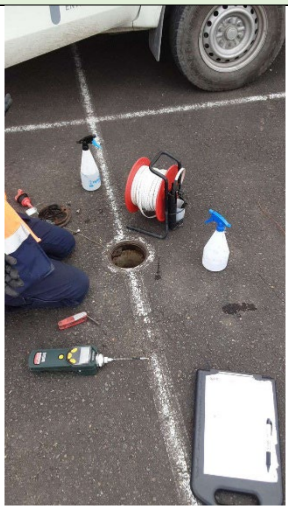

Photo1: Area

Photo 2: Bore condition

[55] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2]$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV009_w
Job No:	SC210108.03	**Date:**	19/8/2024 10:48
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.820016,151.022563
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.13
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition		Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.14	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[57] (L)	17.43
Total Depth of Well (TD in m BTOC)	7.12	Minium Purge Volume[58]	52.29
Height of Standing Water Column (m)	4.98	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	20	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☑ Yes				At L					☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
19/8	10:54	0.2		2.17	6.52	2,078	-133.2	0.2	2.2			1,358	20.3	as previous	as previous
19/8	10:57	0.5	0.1	2.16	6.45	2,118	-131.8	0.22	0.21			1,378	19.9	as previous	as previous
19/8	11:00	0.7	0.1	2.16	6.43	2,109	-132.2	0.19	2.1			1,371	19.8	as previous	as previous
19/8	11:03	0.8	0.05	2.16	6.43	2,103	-132.1	0.22	2.4			1,365	20.1	as previous	as previous
19/8	11:06	1	0.1	2.16	6.44	2,085	-130.5	0.21	2.3			1,356	20.1	as previous	as previous
Other Observations	Colourless, clear, metallic odour														

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV009_w	No duplicate sample collected	No duplicate sample collected	RS06
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

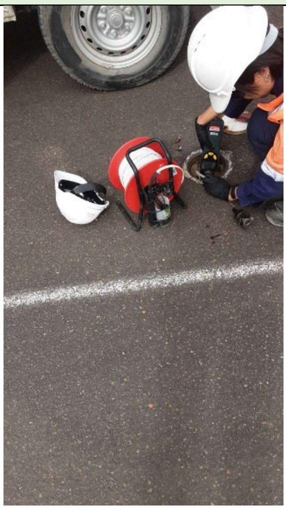

Photo1: Area

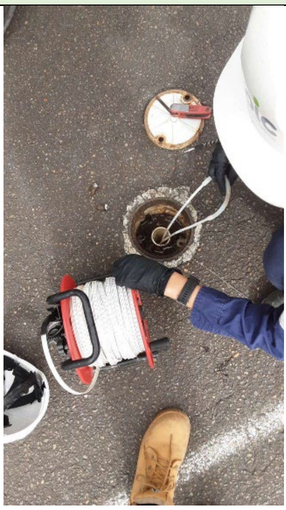

Photo 2: Bore condition

[57] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV010
Job No:	SC210108.03	**Date:**	19/8/2024 11:33
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.820017,151.022236
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	2.4	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[59] (L)	16.8
Total Depth of Well (TD in m BTOC)	7.2	Minium Purge Volume[60]	50.4
Height of Standing Water Column (m)	4.8	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	18	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☐ Yes				At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

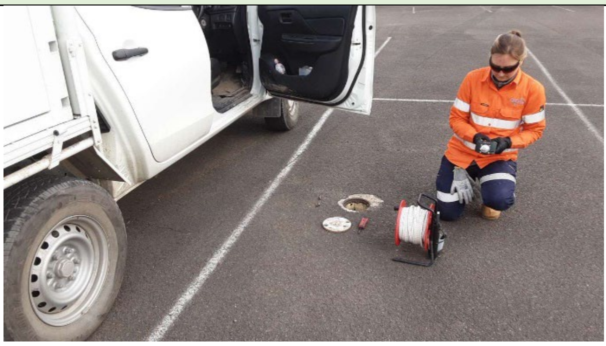

Photo1: Area

Photo 2: Bore condition

[59] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2$ + 0.3 x ($\pi r(annulus)^2$ - $\pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV039
Job No:	SC210108.03	**Date:**	7/8/2024 13:36
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.826847,151.021654
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	5.64	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[61] (L)	16.87
Total Depth of Well (TD in m BTOC)	10.46	Minium Purge Volume[62]	50.61
Height of Standing Water Column (m)	4.82	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.8	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
7/8	13:44	0.1		5.84	6	27,801	20.9	0.34	3.9			18,252	17.1		
7/8	13:47	0.2	0.05	5.89	6	28,205	10.5	0.35	4.2			18,330	17.3		
7/8	13:50	0.8	0.3	5.96	6.05	28,203	-0.3	0.62	7			18,330	17.3		
7/8	13:53	1	0.1	6.2	6.02	28,127	-6.6	0.82	9.6			18,278	17.3		
7/8	13:56	1.2	0.1	6.6	6.03	28,046	-11.5	1.23	14.3			18,206.5	17.2		
7/8	13:59	1.5	0.15	6.12	6.03	27,885	-18.5	1.63	18.8			18,115.5	17.2		
7/8	14:02	1.9	0.2	6.13	6.03	27,777	-20.1	1.83	21.2			18,037.5	17.1		
7/8	14:05	2.1	0.07	6.15	6.03	27,350	-18.2	2.03	23.3			17,758	17.2		
7/8	14:09	2.6	0.17	6.19	6.03	27,352	-18.2	2.16	24.8			17,777.5	17.1		
7/8	14:12	2.9	0.15	6.21	6.03	27,322	-18.1	2.21	25.4			17,758	17		

Other Observations: No odour, pale copper br, slightly turbid

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☐ Yes ☑ No	**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:		

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV039			

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment:

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[61] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV145
Job No:	SC210108.03	**Date:**	7/8/2024 10:16
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.827996,151.027838
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.13
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Bailer
Water Level Depth (WL in m BTOC)	11.22	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[63] (L)	11.795
Total Depth of Well (TD in m BTOC)	14.59	Minium Purge Volume[64]	35.385
Height of Standing Water Column (m)	3.37	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2.2	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
7/8	10:42	2			5.85	22,784	86.1	1.92	21.3			4,820	16.1		

Other Observations: Very brown , copper brown , slight metallic odour, very turbid

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer
Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☑ CT2X	☐ Rugged BaroTROLL ☐ BarroTroll ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV145			

Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC
Comment	Hydrasleeve 2 at approx 12 mbgl

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[63] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV226_s
Job No:	SC210108.03	**Date:**	6/8/2024 15:13
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.829537,151.025439
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.12
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	3.96	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[65] (L)	2.275
Total Depth of Well (TD in m BTOC)	4.61	Minium Purge Volume[66]	6.825
Height of Standing Water Column (m)	0.65	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.3	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At 2.2 L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
6/8	15:24	0.3		4.08	6.35	7,770	-107.9	0.15	1.6			5,031	16.1		
6/8	15:28	1	0.18	4.29	6.37	7,326	-107.6	0.28	2.9			4,758	16		
6/8	15:31	1.5	0.25	4.37	6.37	7,300	-110.4	0.32	3.3			1,751	15.9		
6/8	15:34	1.8	0.15	4.43	6.36	7,348	-119.4	0.39	4.1			4,777	15.5		
6/8	15:37	2	0.1	4.49	6.35	7,379	-128.3	0.51	5.3			4,790.5	15.7		
6/8	15:40	2.1	0.05	4.59	6.36	7,195	-122.5	0.71	7.6			4,647.5	15.8		

Other Observations: Dark copper brown, turbid

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Purg dry. Come back another day			

PHOTOS (IF TAKEN)

Photo1: Area

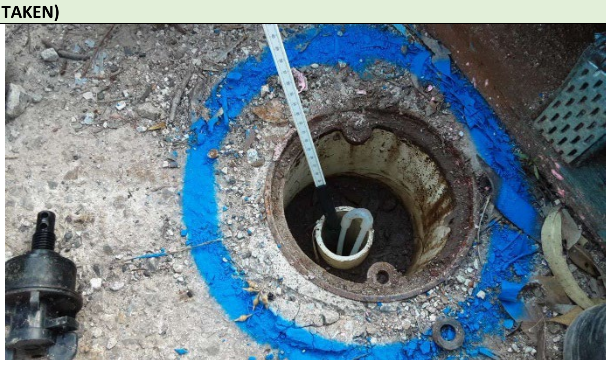

Photo 2: Bore condition

[65] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2]$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV226_s
Job No:	SC210108.03	**Date:**	12/8/2024 15:06
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829597,151.026096
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition		Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	3.98	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[67] (L)	0
Total Depth of Well (TD in m BTOC)		Minium Purge Volume[68]	0
Height of Standing Water Column (m)		Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At 2 L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
12/8	15:06	1.5			6.41	6,940	-58.9	1.31	13.5			4,517	16.9	as previous	as previous

Other Observations: Copper br, cloudy, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV226_s	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area	**Photo 2: Bore condition**

[67] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH02_w
Job No:	SC210108.03	**Date:**	9/8/2024 11:14
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.808034,150.986044
Weather:	Overcast		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Bailer
Water Level Depth (WL in m BTOC)	6.52	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[69] (L)	50.505
Total Depth of Well (TD in m BTOC)	20.95	Minium Purge Volume[70]	151.515
Height of Standing Water Column (m)	14.43	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	11.1	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☑ Yes			At L						☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
9/8	12:03				8.96	8,789	-133.4	1.03	11.4			5,707	18.9	as previous	as previous
Other Observations	Earthy smell, dark grey colour														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☑ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH02_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

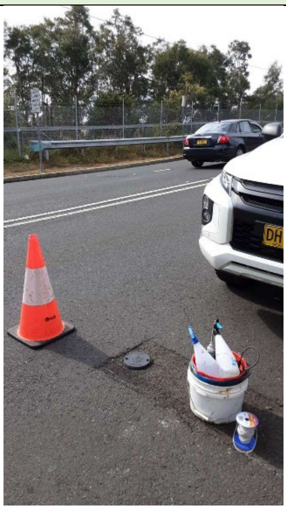

Photo1: Area

Photo 2: Bore condition

[69] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

A Montrose Environmental Company

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH03 A
Job No:	SC210108.03	**Date:**	9/8/2024 10:05
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.808909,150.989307
Weather:	Overcsst		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Bailer
Water Level Depth (WL in m BTOC)	16.85	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[71] (L)	18.48
Total Depth of Well (TD in m BTOC)	22.13	Minium Purge Volume[72]	55.44
Height of Standing Water Column (m)	5.28	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	8	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
9/8	10:37	2.5			6.52	17,962	142.9	2.15	22.7			11,570	15.8	as previous	as previous

Other Observations: Dark grey, turbid, slight hydrocarbon odour, slight possible slick

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☑ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH03 A	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Deployed 2L HS			

PHOTOS (IF TAKEN)

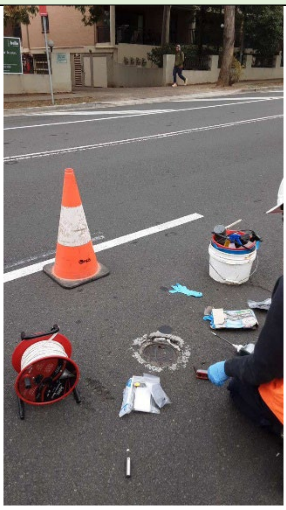

Photo1: Area

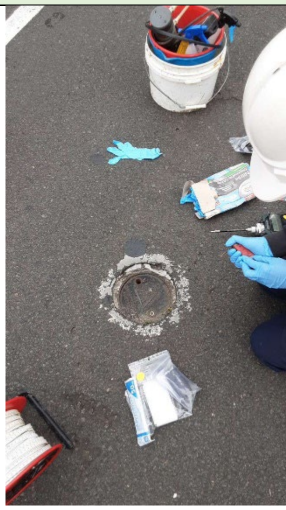

Photo 2: Bore condition

[71] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

A Montrose Environmental Company

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH13_w
Job No:	SC210108.03	**Date:**	7/8/2024 11:27
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.827249,151.024796
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.2
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	1.01	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[73] (L)	19.985
Total Depth of Well (TD in m BTOC)	6.72	Minium Purge Volume[74]	59.955
Height of Standing Water Column (m)	5.71	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☑ Yes			At L						☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
7/8	11:34	0.2		1.07	6.81	2,735	-69.9	1.4	14.2			1,755	15.2		
7/8	11:37	0.5	0.15	1.15	6.69	2,609	-89.1	1.13	11.3			1,696	15.2		
7/8	11:40	1.3	0.4	1.23	6.65	2,587	-88.5	1.12	11.2			1,683	15.1		
7/8	11:43	2.1	0.4	1.29	6.62	2,569	-84	1.11	11.2			1,670	15		
7/8	11:46	3	0.45	1.37	6.61	2,562	-65.6	1.15	11.6			1,664	15		
7/8	11:49	3.3	0.15	1.38	6.6	2,567	-51.2	1.23	12.1			1,661	14.2		
7/8	11:52	4	0.35	1.38	6.6	2,556	-23.2	1.28	12.6			1,664	14.2		
7/8	11:55	4.2	0.1	1.3	3.6	2,558	-0.3	1.35	13.3			1,664	13.9		
7/8	11:58	4.35	0.05	1.36	6.6	2,551	10.6	1.37	13.4			1,657.5	13.8		
7/8	12:01	4.5	0.08	1.37	6.6	2,547	14.3	1.39	13.6			1,657.5	13.8		
7/8	12:04	4.9	0.2	1.35	6.6	2,543	9.7	1.41	13.7			1,651	13.8		
7/8	12:07	5.1	0.1	1.32	6.59	2,543	8.2	1.45	14.2			1,651	13.8		
Other Observations			Clear, colourless, no odour												

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH13_w			
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Well cap sligjtly open from telemetry, cant get pid			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[73] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH22_w
Job No:	SC210108.03	**Date:**	9/8/2024 13:31
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.842076,151.058345
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.17
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	16.31	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[75] (L)	30.345
Total Depth of Well (TD in m BTOC)	24.98	Minium Purge Volume[76]	91.035
Height of Standing Water Column (m)	8.67	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	10.5	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☑ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

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[75] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH23
Job No:	SC210108.03	**Date:**	9/8/2024 13:50
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.843633,151.0633
Weather:	Partly cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	25.8	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[77] (L)	15.575
Total Depth of Well (TD in m BTOC)	30.25	Minium Purge Volume[78]	46.725
Height of Standing Water Column (m)	4.45	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.4	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[77] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 – August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_s
Job No:	SC210108.03	**Date:**	6/8/2024 10:03
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.829672,151.025682
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.11
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.36	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[79] (L)	11.585
Total Depth of Well (TD in m BTOC)	5.67	Minium Purge Volume[80]	34.755
Height of Standing Water Column (m)	3.31	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.2	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
6/8	10:12	0.5		2.52	6.91	3,488	-7.4	0.35	3.6			2,249	17		
6/8	10:14	0.6	0.1	2.53	6.87	3,330	-12.2	0.26	2.7			2,151.5	16.9		
6/8	10:17	0.7	0.05	2.55	6.86	3,283	-20.3	0.23	2.4			2,132	17.1		
6/8	10:20	0.1	-0.2	2.56	6.87	3,265	-28.8	0.21	2.1			2,119	17		
6/8	10:23	1.2	0.55	2.59	6.87	3,242	-33.8	0.19	2			2,106	17.1		
6/8	10:26	1.5	0.15	2.62	6.87	3,230	-36.2	0.19	1.9			2,093			
6/8	10:29	2.3	0.4	2.64	6.87	3,187	-43.7	0.2	2			2,073.5	17.1		
6/8	10:32	2.5	0.1	2.67	6.87	3,185	-47.2	0.23	2.4			2,073.5	17.1		
6/8	10:35	2.9	0.2	2.69	6.88	3,163	-51.7	0.24	2.6			2,054	17.2		
6/8	10:38		0	2.71	6.89	3,146	-61.2	0.27	2.8			2,041	17.1		
6/8	10:42	3.5	0.88	2.73	6.9	3,130	-84.3	0.31	3.2			2,034.5	17.2		
6/8	10:45	3.8	0.15	2.78	6.8948	3,127	-109	0.35	3.7			2,034.5	17.2		
6/8	10:49	4.1	0.08	2.78	6.9	3,112	-107.5	0.4	4.2			2,021.5	17.2		
6/8	10:52	4.3	0.1	2.8	6.9	3,110	-101.8	0.43	4.5			2,021.5	17.2	Pale brown	Dirt earthy

Other Observations Sllightly turbid

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH25_s			
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

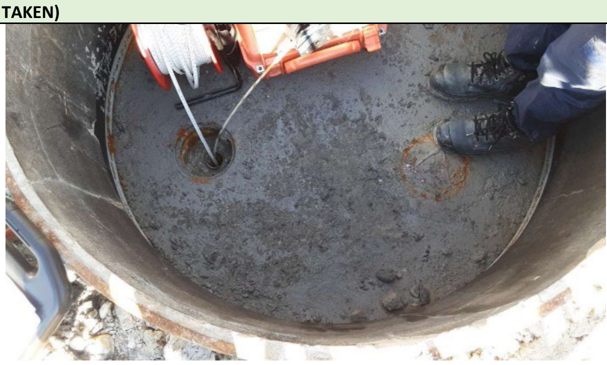

Photo 2: Bore condition

[79] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_w
Job No:	SC210108.03	**Date:**	6/8/2024 11:22
Recorded By:	Chandra, Natalie	**Lat / Long:**	-33.82961,151.02566
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.12
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	6.59	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[81] (L)	12.39
Total Depth of Well (TD in m BTOC)	10.13	Minium Purge Volume[82]	37.17
Height of Standing Water Column (m)	3.54	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.7	Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☑ Yes					At L				☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
6/8	11:34	0.2		6.74	4.96	21,370	54.6	0.83	9.8			13,916	18.1		
6/8	11:37	0.5	0.15	6.83	4.96	21,500	50.6	1.43	16.5			13,981	18.2		
6/8	11:40	0.6	0.05	6.95	4.96	21,563	43.1	2.41	27.7			14,014	18.2		
6/8	11:43	1	0.2	7.03	4.96	21,466	15	2.65	30.6			13,955	18.2		
6/8	11:47	1.5	0.17	7.15	4.96	21,425	-21.6	2.68	30.5			13,929	18		
6/8	11:50	1.8	0.1	7.17	4.96	21,418	-65.5	2.62	29.9			13,916			
6/8	11:53	1.9	0.05	7.18	4.97	21,356	-86.2	2.56	29.2			13,897	18		
6/8	11:57	2.1	0.07	7.19	4.97	21,350	-45	2.49	28.6			13,877.5	18.2		
6/8	12:00	2.4	0.15	7.2	4.96	21,382	-12	2.45	28.1			13,910	18.3		
6/8	12:04	2.5	0.03	7.21	4.97	21,414	5.7	2.7	31.1			13,942	18.6		
6/8	12:07	2.9	0.2	7.22	4.97	21,507	9.5	2.65	30.6			13,994.5	18.4		
6/8	12:10	3	0.05	7.23	4.97	21,565	9.6	2.6	29.7			14,033	18.2		
Other Observations	Cloudy, grey, metallic odour, slight sheen														

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☑ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH25_w			
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Well head flooded			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[81] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 8 - August

October 2024 GME

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV042
Job No:	SC210108.03	**Date:**	25/10/2024 11:01
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829763,151.027519
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.08
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	10.07	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[1] (L)	0.49
Total Depth of Well (TD in m BTOC)	10.21	Minium Purge Volume[2]	1.47
Height of Standing Water Column (m)	0.14	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	7.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At 0.5 L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[1] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW03
Job No:	SC210108.03	**Date:**	25/10/2024 08:51
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.828363,151.027427
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	1.37	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[3] (L)	10.115
Total Depth of Well (TD in m BTOC)	4.26	Minium Purge Volume[4]	30.345
Height of Standing Water Column (m)	2.89	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	21.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
25/10	08:58	0.2		1.48	5.58	6,732	145.3	0.35	3.6			1,361	19.5	as previous	as previous
25/10	09:01	0.4	0.1	1.53	5.53	6,519	130.6	0.46	5.1			1,225	19.8	as previous	as previous
25/10	09:04	0.6	0.1	1.59	5.51	6,454	125.8	0.28	3			4,192	19.7	as previous	as previous
25/10	09:07	0.8	0.1	1.67	5.49	6,424	123.5	0.24	2.6			1,173	20	as previous	as previous
25/10	09:10	1.1	0.15	1.75	5.47	6,417	122.3	0.28	3.1			4,166	20	as previous	as previous
25/10	09:13	1.4	0.1	1.8	5.46	6,404	121.3	0.33	3.7			4,160	20	as previous	as previous
25/10	09:16	1.7	0.15	1.87	5.45	6,392	121.2	0.36	4			4,153.5	20.1	as previous	as previous
25/10	09:20	2.1	0.13	1.95	5.43	6,377	120.1	0.46	5.2			4,140	20	as previous	as previous
25/10	09:23	2.3	0.1	2.06	5.44	6,344	121.9	0.52	5.8			4,127	20.1	as previous	as previous
25/10	09:26	2.5	0.1	2.1	5.39	6,301	123.8	0.61	6.9			4,095	20.1	as previous	as previous
25/10	09:29	2.8	0.1	2.17	5.36	6,256	125.3	0.64	7.2			4,062	20.3	as previous	as previous
25/10	09:33	3.1	0.1	2.24	5.32	6,207	128.3	0.72	8.2			4,036	20.2	as previous	as previous
25/10	09:37	3.4	0.08	2.31	5.29	6,133	130.7	0.78	8.8			3,978	20.2	as previous	as previous
25/10	09:41	3.7	0.1	2.38	5.25	5,864	133.9	0.89	10			3,809	20.2	as previous	as previous
25/10	09:44	3.9	0.1	2.44	5.23	5,454	134.5	0.97	11			3,529	20.2	as previous	as previous
25/10	09:47	4	0.05	2.51	5.22	5,247	133.8	0.99	11.1			3,406	20.2	as previous	as previous
25/10	09:50	4.5	0.17	2.57	5.2	5,180	132.3	0.99	11.2			3,367	20.1	as previous	as previous
25/10	09:53	4.7	0.1	2.63	5.19	5,171	131.1	0.99	11.1			3,360.5	20.2	as previous	as previous

Other Observations: Clear, colourless, no odour, trace slick

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X ☐ BarroTroll ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ4e_MW03	No duplicate sample collected	No duplicate sample collected	RS07

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment:

PHOTOS (IF TAKEN)

[3] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Photo1: Area	**Photo 2: Bore condition**

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW02
Job No:	SC210108.03	**Date:**	25/10/2024 07:26
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.828721,151.026685
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.07
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	1.82	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[5] (L)	14.56
Total Depth of Well (TD in m BTOC)	5.98	Minium Purge Volume[6]	43.68
Height of Standing Water Column (m)	4.16	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	17.6	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes			At L					☑ No		
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
25/10	07:34	0.2		1.93	5.44	22,106	155.8	0.21	2.4			14,612	19.1	as previous	as previous
25/10	07:37	0.3	0.05	1.05	5.39	22,407	126.5	0.25	2.9			14,722	18.9	as previous	as previous
25/10	07:40	0.4	0.05	2.17	5.28	22,095	124.8	0.31	3.6			14,365	19	as previous	as previous
25/10	07:44	0.6	0.05	2.28	5.21	21,693	121.7	0.37	4.3			14,072	19.1	as previous	as previous
25/10	07:47	0.8	0.1	2.41	5.15	21,369	122.2	0.45	5.2			13,864	19.1	as previous	as previous
25/10	07:50	1	0.1	2.48	5.08	21,014	121.1	0.54	6.3			13,669	19	as previous	as previous
25/10	07:53	1.1	0.05	2.57	5.03	20,731	118	0.65	7.7			13,455	19.1	as previous	as previous
25/10	07:56	1.5	0.2	2.64	5.01	20,436	118.9	0.71	8.2			13,305	19.1	as previous	as previous
25/10	07:59	1.8	0.1	2.7	4.99	20,232	115.6	0.74	8.6			13,123.5	19.1	as previous	as previous
25/10	08:02	2	0.1	2.79	4.97	20,102	116	0.76	8.8			13,071	19.1	as previous	as previous
Other Observations	Clear, colourless, no odour														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:	
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ4e_MW02	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Well headflooded with sheen, tubing semi broken so fixed. 5.4 m string			

PHOTOS (IF TAKEN)

Photo1: Area

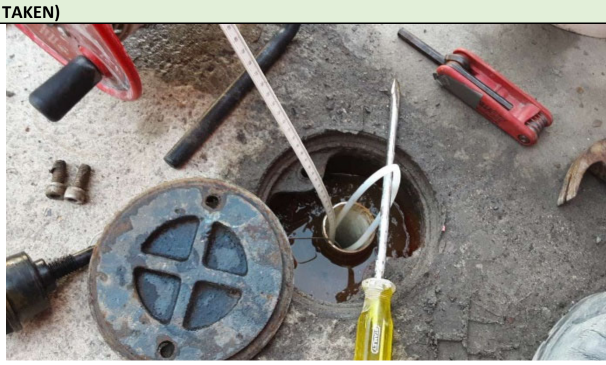

Photo 2: Bore condition

[5] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: CZ5a_MW105
Job No:	SC210108.03	**Date:**	24/10/2024 13:14
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829922,151.022859
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.97
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	6.53	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[7] (L)	15.505
Total Depth of Well (TD in m BTOC)	10.96	Minium Purge Volume[8]	46.515
Height of Standing Water Column (m)	4.43	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	14.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
24/10	13:25	0.2		6.6	6.4	22,545	62.5	0.95	11.1			14,625	20.2	as previous	as previous
24/10	13:28	0.5	0.15	6.65	6.37	22,589	143.7	0.71	8.4			14,683.5	20	as previous	as previous
24/10	13:31	0.6	0.05	6.69	6.36	22,524	168.8	0.77	9.1			14,631	20.2	as previous	as previous
24/10	13:34	0.7	0.05	6.72	6.36	22,559	182.7	0.84	9.7			14,670	20.1	as previous	as previous
24/10	13:37	0.9	0.1	6.76	6.35	22,530	196.3	0.76	8.9			14,638	20.2	as previous	as previous
24/10	13:41	1.3	0.1	6.8	6.35	22,467	204.2	0.81	9.8			14,599	20.2	as previous	as previous
24/10	13:44	1.5	0.1	6.82	6.35	22,458	208.2	0.9	10.7			14,599	20.1	as previous	as previous
24/10	13:47	1.7	0.1	6.86	6.35	22,438	210.5	0.86	10.3			14,579.5	20.1	as previous	as previous

Other Observations Clear, colourless, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	Other	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

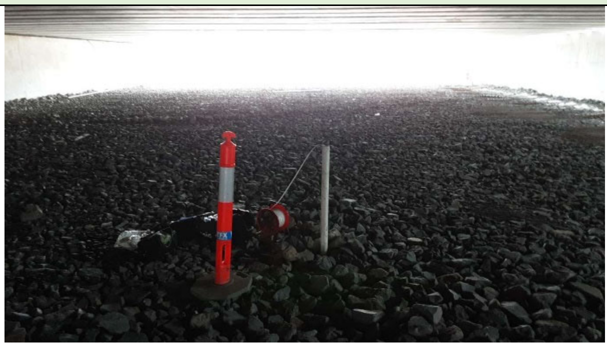

Photo1: Area

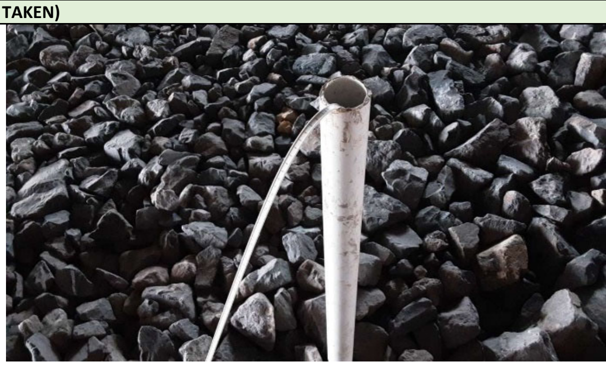

Photo 2: Bore condition

[7] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: CZ5a_MW104
Job No:	SC210108.03	**Date:**	24/10/2024 12:25
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829481,151.022428
Weather:	Sunny, windy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.88
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	4.02	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[9] (L)	10.185
Total Depth of Well (TD in m BTOC)	6.93	Minium Purge Volume[10]	30.555
Height of Standing Water Column (m)	2.91	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	17.6	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
24/10	12:37	0.2		4.06	6.68	24,763	-188	0.35	4.2			16,094	19.1	as previous	as previous
24/10	12:40	0.4	0.1	4.06	6.68	24,563	-189.8	0.18	2.1			15,951	19.2	as previous	as previous
24/10	12:43	0.6	0.1	4.04	6.7	24,205	-192.4	0.14	1.6			15,717	19.3	as previous	as previous
24/10	12:46	0.7	0.05	4.04	6.73	24,002	-195.7	0.09	1.1			15,600	19.3	as previous	as previous
24/10	12:49	0.8	0.05	4.04	6.7	23,883	-197.7	0.08	0.9			15,515	19.3	as previous	as previous
24/10	12:52	1	0.1	4.04	6.69	24,016	-193.7	0.09	1.1			15,613	19.3	as previous	as previous

Other Observations: Darky grey, silty, savoury odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	Other	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[9] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)^2 + 0.3 x (πr(annulus)^2 - πr(casing)^2*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: CZ5a_MW103
Job No:	SC210108.03	**Date:**	24/10/2024 09:51
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.824921,151.025485
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.77
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.94	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[11] (L)	20.405
Total Depth of Well (TD in m BTOC)	8.77	Minium Purge Volume[12]	61.215
Height of Standing Water Column (m)	5.83	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
24/10	09:59	0.4		2.99	7.09	10,700	-156.8	0.16	1.7			6,766.5	15.6	as previous	as previous
24/10	10:02	0.8	0.2	2.98	7.05	9,880	-167.7	0.15	1.6			6,422	18.7	as previous	as previous
24/10	10:05	1.1	0.15	2.99	7.03	9,870	-169.9	0.1	1.1			6,376	18.7	as previous	as previous
24/10	10:08	1.5	0.2	2.99	7.02	9,690	-170.9	0.09	1			6,285	18.6	as previous	as previous
24/10	10:11	1.8	0.15	2.99	7.01	9,470	-171.7	0.06	0.7			6,155.5	18.7	as previous	as previous
24/10	10:14	2	0.07	2.99	7.01	9,364	-171.7	0.06	0.7			6,077.5	18.7	as previous	as previous
24/10	10:18	2.3	0.1	2.98	7	9,270	-172.4	0.05	0.6			6,025	18.7	as previous	as previous

Other Observations: Cloudy, brown, musky odour, some dark grey silt

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary: CZ5a_MW103	Duplicate: QC05	Triplicate: QC05	Rinsate: No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Silty at bottom, no well cap used duct tape			

PHOTOS (IF TAKEN)

Photo1: Area

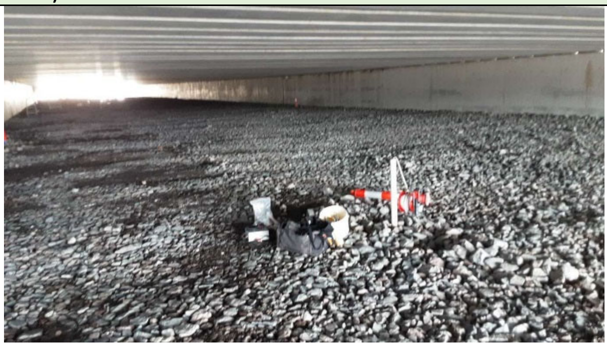

Photo 2: Bore condition

[11] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*
[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*
[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: CZ5a_MW101
Job No:	SC210108.03	**Date:**	24/10/2024 08:18
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.824921,151.025485
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.06
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	6.19	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[13] (L)	2.87
Total Depth of Well (TD in m BTOC)	7.01	Minium Purge Volume[14]	8.61
Height of Standing Water Column (m)	0.82	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	15	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At 2.3 L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
24/10	08:28	0.2		6.32	6.56	32,529	116.9	2.53	30.8			21,144.5	19.5	as previous	as previous
24/10	08:33	0.6	0.1	6.39	6.49	32,422	124.9	2.37	28.6			21,073	19.6	as previous	as previous
24/10	08:36	0.8	0.07	6.47	6.45	32,327	128.2	2.02	24.9			21,034	19.8	as previous	as previous
24/10	08:39	1	0.1	6.51	6.47	32,803	129.5	1.67	20.5			21,326.5	19.8	as previous	as previous
24/10	08:42	1.2	0.1	6.55	6.45	32,936	130.8	1.41	17.3			21,404	19.7	as previous	as previous
24/10	08:45	1.5	0.15	6.6	6.44	32,930	132.4	1.39	17.1			21,404.5	19.7	as previous	as previous
24/10	08:50	1.8	0.06	6.63	6.44	32,909	140.8	2.02	24.6			21,404	19.8	as previous	as previous
24/10	08:53	2	0.1	6.73	6.44	33,461	141.1	0.84	10.4			21,749	19.6	as previous	as previous

Other Observations Slightly grey, no odour, clear.

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:		

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Water issue at 850 am, stopped coming out.. DO not stabilised, may purge dry			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[13] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV039
Job No:	SC210108.03	**Date:**	23/10/2024 13:39
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.826935,151.021639
Weather:	Muggy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	6.19	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[15] (L)	14.525
Total Depth of Well (TD in m BTOC)	10.34	Minium Purge Volume[16]	43.575
Height of Standing Water Column (m)	4.15	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
23/10	13:45	0.2		6.37	6.16	30,774	-10.8	0.27	3.4			19,981	21.5	as previous	as previous
23/10	13:48	0.4	0.1	6.54	6.12	30,590	1.7	0.13	1.6			19,935	21.4	as previous	as previous
23/10	13:51	0.8	0.13	6.65	6.14	30,015	17.7	0.19	2.4			19,461	21.4	as previous	as previous
23/10	13:54	1.1	0.15	6.78	6.12	29,149	20	0.2	2.6			18,941	21.4	as previous	as previous
23/10	13:57	1.6	0.25	6.85	6.13	28,885	17.2	0.27	3.4			18,720	21.6	as previous	as previous
23/10	14:00	1.8	0.1	6.84	6.12	28,830	14.9	0.37	4.7			18,869	22	as previous	as previous
23/10	14:03	2	0.1	6.84	6.11	29,471	10.8	0.49	6.2			19,168.5	22	as previous	as previous
23/10	14:07	2.4	0.1	6.85	6.12	29,451	8.1	0.59	7.5			19,136	22.2	as previous	as previous
23/10	14:10	2.6	0.1	6.85	6.11	29,430	3.6	0.64	8.1			19,155	22.1	as previous	as previous
23/10	14:13	2.9	0.15	6.85	6.12	29,525	1.8	0.65	8.3			19,194	22.1	as previous	as previous

Other Observations Clear, colourless, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV039	No duplicate sample collected	No duplicate sample collected	RS05
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[15] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5a_MW101
Job No:	SC210108.03	**Date:**	25/10/2024 12:30
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.830069,151.021555
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Bailer
Water Level Depth (WL in m BTOC)	6.71	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[17] (L)	0
Total Depth of Well (TD in m BTOC)		Minium Purge Volume[18]	0
Height of Standing Water Column (m)		Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☑ Yes At 0.4 L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	Other	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

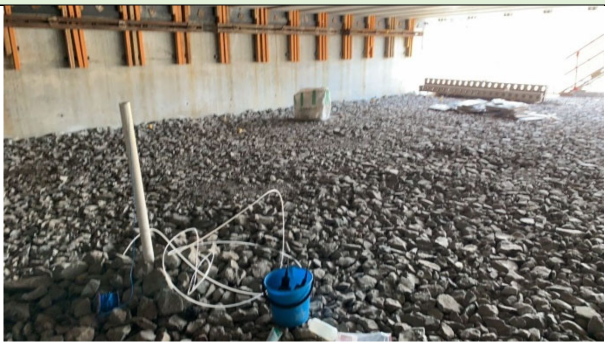

Photo1: Area

Photo 2: Bore condition

[17] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Near CZ1BH13
Job No:	SC210108.03	**Date:**	23/10/2024 08:02
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.833842,151.027402
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.95
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	3.17	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[19] (L)	12.39
Total Depth of Well (TD in m BTOC)	6.71	Minium Purge Volume[20]	37.17
Height of Standing Water Column (m)	3.54	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

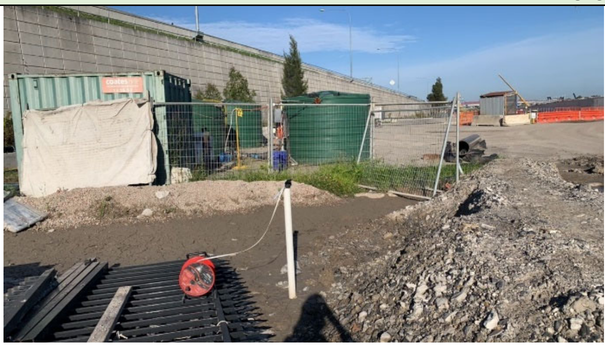

Photo1: Area

Photo 2: Bore condition

[19] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV039
Job No:	SC210108.03	**Date:**	23/10/2024 13:39
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.826935,151.021639
Weather:	Muggy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	6.19	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[21] (L)	14.525
Total Depth of Well (TD in m BTOC)	10.34	Minium Purge Volume[22]	43.575
Height of Standing Water Column (m)	4.15	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
23/10	13:45	0.2		6.37	6.16	30,774	-10.8	0.27	3.4			19,981	21.5	as previous	as previous
23/10	13:48	0.4	0.1	6.54	6.12	30,590	1.7	0.13	1.6			19,935	21.4	as previous	as previous
23/10	13:51	0.8	0.13	6.65	6.14	30,015	17.7	0.19	2.4			19,461	21.4	as previous	as previous
23/10	13:54	1.1	0.15	6.78	6.12	29,149	20	0.2	2.6			18,941	21.4	as previous	as previous
23/10	13:57	1.6	0.25	6.85	6.13	28,885	17.2	0.27	3.4			18,720	21.6	as previous	as previous
23/10	14:00	1.8	0.1	6.84	6.12	28,830	14.9	0.37	4.7			18,869	22	as previous	as previous
23/10	14:03	2	0.1	6.84	6.11	29,471	10.8	0.49	6.2			19,168.5	22	as previous	as previous
23/10	14:07	2.4	0.1	6.85	6.12	29,451	8.1	0.59	7.5			19,136	22.2	as previous	as previous
23/10	14:10	2.6	0.1	6.85	6.11	29,430	3.6	0.64	8.1			19,155	22.1	as previous	as previous
23/10	14:13	2.9	0.15	6.85	6.12	29,525	1.8	0.65	8.3			19,194	22.1	as previous	as previous

Other Observations Clear, colourless, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:	
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV039	No duplicate sample collected	No duplicate sample collected	RS05
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[21] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH010
Job No:	SC210108.03	**Date:**	23/10/2024 12:47
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829751,151.027414
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	10.37	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[23] (L)	58.905
Total Depth of Well (TD in m BTOC)	27.2	Minium Purge Volume[24]	176.715
Height of Standing Water Column (m)	16.83	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2.5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☑ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[23] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV145_w
Job No:	SC210108.03	**Date:**	23/10/2024 11:28
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.828033,151.027808
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.13
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Hydrasleeves
Water Level Depth (WL in m BTOC)	9.85	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[25] (L)	16.59
Total Depth of Well (TD in m BTOC)	14.59	Minium Purge Volume[26]	49.77
Height of Standing Water Column (m)	4.74	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	16.4	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L					☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
23/10	12:03	1			6.01	25,942	102.1	1.83	24.2			16,822	24.4	as previous	as previous
Other Observations	Cloudy, copper or br, metallic odour														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Hydrasleeves
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ BarroTroll ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV145_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Only 1L cameout. Used bailer for in situ parameters and some of green bottle. Few bottles partially fillef			

PHOTOS (IF TAKEN)

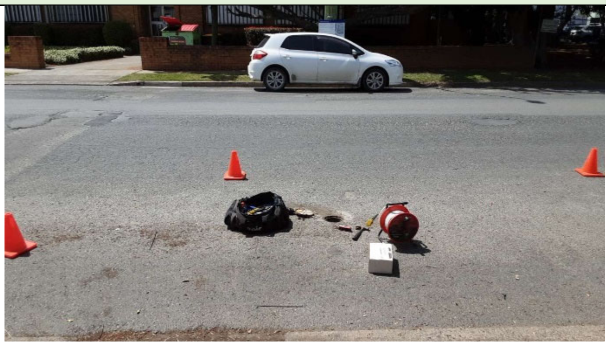

Photo1: Area

Photo 2: Bore condition

[25] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5_MW09
Job No:	SC210108.03	**Date:**	23/10/2024 09:37
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.831835,151.02241
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	0.8	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[27] (L)	14.28
Total Depth of Well (TD in m BTOC)	4.88	Minium Purge Volume[28]	42.84
Height of Standing Water Column (m)	4.08	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
23/10	09:42	0.2		0.93	5.96	13,404	-42.2	0.16	1.9			8,690	20.9	as previous	as previous
23/10	09:45	0.4	0.1	0.99	5.86	13,049	-34	0.16	2			8,476	21	as previous	as previous
23/10	09:48	0.5	0.05	1.03	5.82	12,766	-25.1	0.18	2			8,281	21	as previous	as previous
23/10	09:51	0.8	0.15	1.09	5.78	12,452	-24.6	0.16	1.9			8,079	20.9	as previous	as previous
23/10	09:54	1	0.1	1.11	5.77	12,261	-35.4	0.21	2.5			7,969	20.9	as previous	as previous
23/10	09:57	1.2	0.1	1.13	5.76	12,064	-63.9	0.27	3.2			7,832	20.9	as previous	as previous
23/10	10:00	1.7	0.25	1.16	5.77	11,845	-91.6	0.35	4.1			7,702	21	as previous	as previous
23/10	10:03	1.9	0.1	1.17	5.77	11,413	-103.7	0.44	5.1			7,403	21	as previous	as previous
23/10	10:06	2.4	0.17	1.16	5.76	11,193	-105.7	0.51	5.9			7,267	21	as previous	as previous
23/10	10:09	2.7	0.15	1.16	5.75	11,088	-108.5	0.55	6.4			7,202	21	as previous	as previous
23/10	10:12	2.9	0.1	1.16	5.75	11,078	-110.8	0.57	6.7			7,202	21	as previous	as previous
23/10	10:15	3	0.05	1.16	5.74	11,087	-111.6	0.6	6.9			7,208	20.8	as previous	as previous

Other Observations: Sweet odour, slightly cloudy, pale copper br, then colourless

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ5_MW09	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Silty bottom			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[27] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ1_BH13
Job No:	SC210108.03	**Date:**	23/10/2024 08:16
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.834215,151.028204
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	3.14	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[29] (L)	22.96
Total Depth of Well (TD in m BTOC)	9.7	Minium Purge Volume[30]	68.88
Height of Standing Water Column (m)	6.56	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☐ Yes					At L					☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
23/10	08:23	0.2		3.25	6.31	28,773	-153.4	2.3	27.3			18,765	18.5	as previous	as previous
23/10	08:26	0.3	0.05	3.4	6.25	29,159	-49.5	2.99	35.6			18,941	18.8	as previous	as previous
23/10	08:29	0.5	0.1	3.54	6.24	29,233	15.9	3.43	41			18,999	19	as previous	as previous
23/10	08:32	0.6	0.05	3.6	6.27	29,174	28.7	3.91	47.7			19,012	19.1	as previous	as previous
23/10	08:35	0.7	0.05	3.65	6.28	29,267	32.6	4.26	51			19,032	19.3	as previous	as previous
23/10	08:38	0.8	0.05	3.71	6.28	29,277	33	4.25	51.4			19,032	19.4	as previous	as previous
Other Observations	Dark grey, slightly turbid, no odour, no sheen														

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ1_BH13	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[29] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH13_w
Job No:	SC210108.03	**Date:**	22/10/2024 15:05
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.827283,151.024965
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.17
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	1.86	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[31] (L)	16.975
Total Depth of Well (TD in m BTOC)	6.71	Minium Purge Volume[32]	50.925
Height of Standing Water Column (m)	4.85	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	10.4	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
22/10	15:13	0.3		1.92	6.44	6,674	-195.6	0.46	5.3			4,316	21.2	as previous	as previous
22/10	15:16	0.5	0.1	1.98	6.28	6,612	-155.3	0.41	4.7			4,296	21.6	as previous	as previous
22/10	15:19	0.7	0.1	2.02	6.23	6,586	-160.2	0.37	4.2			4,277	21.4	as previous	as previous
22/10	15:22	0.95	0.13	2.08	6.2	6,576	-165.9	0.38	4.4			4,270	21.5	as previous	as previous
22/10	15:25	1.2	0.13	2.12	6.17	6,563	-170.9	0.32	3.8			4,270	21.7	as previous	as previous
22/10	15:29	1.5	0.08	2.16	6.16	6,575	-175.3	0.36	4.2			4,264	21.9	as previous	as previous
22/10	15:32	1.6	0.05	2.19	6.15	6,585	-174.2	0.4	4.6			4,277	21.9	as previous	as previous
22/10	15:35	1.8	0.1	2.21	6.13	6,581	-169.5	0.57	6.8			4,270	23.1	as previous	as previous
22/10	15:38	1.9	0.05	2.24	6.13	6,561	-170.8	0.52	6.1			4,277	21.8	as previous	as previous
22/10	15:41	2.1	0.1	2.3	6.13	6,552	-177.8	0.44	5			4,257	20.5	as previous	as previous
22/10	15:44	2.3	0.1	2.36	6.12	6,512	-182.4	0.45	5.1			4,231.5	20.6	as previous	as previous
22/10	15:47	2.8	0.25	2.41	6.12	6,519	-183.5	0.47	5.4			4,238	20.7	as previous	as previous

Other Observations Colourless, clear, grassy odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH13_w	No duplicate sample collected	No duplicate sample collected	RS04

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[31] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW16_w
Job No:	SC210108.03	**Date:**	22/10/2024 13:22
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.824496,151.022033
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Hydrasleeves
Water Level Depth (WL in m BTOC)	13.51	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[33] (L)	19.67
Total Depth of Well (TD in m BTOC)	19.13	Minium Purge Volume[34]	59.01
Height of Standing Water Column (m)	5.62	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	6.7	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
22/10	14:08	2			6.92	17,636	-159.6	1.23	16.2			11,453	26.9	as previous	as previous

Other Observations Sulfuric odour, slightly cloudy, slightly pale br, back silt at bottom of hs

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Hydrasleeves

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	GALC-MW16_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

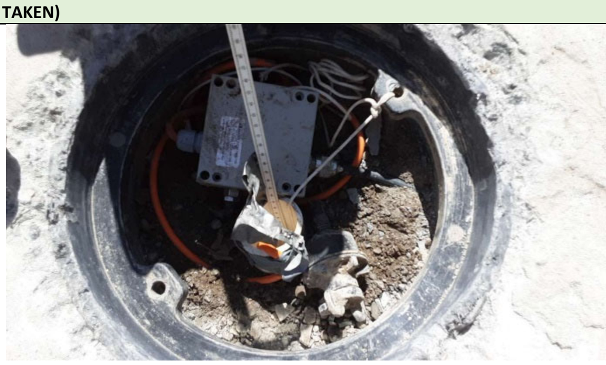

Photo 2: Bore condition

[33] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2]$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW16_s
Job No:	SC210108.03	**Date:**	22/10/2024 13:14
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.824523,151.02187
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	10.84	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[35] (L)	0
Total Depth of Well (TD in m BTOC)	10.84	Minium Purge Volume[36]	0
Height of Standing Water Column (m)	0	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	12.6	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment: Essentially dry but moist and silty at bottom

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[35] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_s
Job No:	SC210108.03	**Date:**	22/10/2024 10:28
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829685,151.025712
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.43	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[37] (L)	11.305
Total Depth of Well (TD in m BTOC)	5.66	Minium Purge Volume[38]	33.915
Height of Standing Water Column (m)	3.23	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.4	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

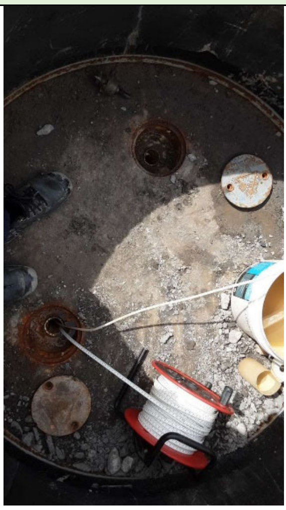
Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
22/10	10:39	0.2		2.52	6.69	5,429	-49.5	0.59	6.6			3,484	21	as previous	as previous
22/10	10:42	0.6	0.2	2.58	6.77	5,148	-56.6	0.3	3.4			3,341	20.7	as previous	as previous
22/10	10:45	0.8	0.1	2.64	6.8	4,946	-59.2	0.17	1.9			3,211	20.5	as previous	as previous
22/10	10:50	1.2	0.08	2.69	6.81	4,749	-73.5	0.09	1			3,081	20.4	as previous	as previous
22/10	10:53	1.7	0.25	2.73	6.82	4,672	-89.1	0.11	1.2			3,035	20.5	as previous	as previous
22/10	10:56	1.9	0.1	2.75	6.83	4,613	-99.7	0.11	1.3			2,996	20.6	as previous	as previous
22/10	10:59	2.3	0.13	2.78	6.84	4,570	-113.6	0.09	1			2,970	20.7	as previous	as previous
22/10	11:02	2.8	0.75	2.79	6.87	4,428	-134	0.11	1.2			2,892.5	20.7	as previous	as previous
22/10	11:06	3	-0.27	2.82	6.88	4,418	-136.4	0.13	1.4			2,866	20.8	as previous	as previous
22/10	11:09	3.2	0.1	2.84	6.89	4,344	-141.1	0.14	1.5			2,811.5	20.8	as previous	as previous

Other Observations Colourless, slightly cloudy, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:	
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH25_s	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)



[37] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Photo1: Area	Photo 2: Bore condition

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_w
Job No:	SC210108.03	**Date:**	22/10/2024 09:11
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829676,151.025618
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	6.93	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[39] (L)	11.2
Total Depth of Well (TD in m BTOC)	10.13	Minium Purge Volume[40]	33.6
Height of Standing Water Column (m)	3.2	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	9.3	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
22/10	09:28	0		7.03	5.15	23,881	14.8	0.51	6.3			15,543	20.9	as previous	as previous
22/10	09:31	0.4	0	7.05	5.15	23,992	17.1	0.66	8.2			15,613	21	as previous	as previous
22/10	09:35	0.7	0.18	7.12	5.14	24,056	18.9	0.83	10.2			15,632.5	21.3	as previous	as previous
22/10	09:38	0.9	0.1	7.17	5.14	24,019	17.4	0.86	10.7			15,613	21.4	as previous	as previous
22/10	09:41	1	0.05	7.2	5.14	23,994	10.8	0.88	10.8			15,587	21	as previous	as previous
22/10	09:44	1.1	0.05	7.22	5.12	23,959	5.2	0.88	10.9			15,574	21.8	as previous	as previous
22/10	09:47	1.2	0.05	7.24	5.13	23,975	1.9	0.88	10.9			15,587.5	21	as previous	as previous

Other Observations Water initially orange, cloudy, metallic odour, trace possible sheen

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☑ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH25_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

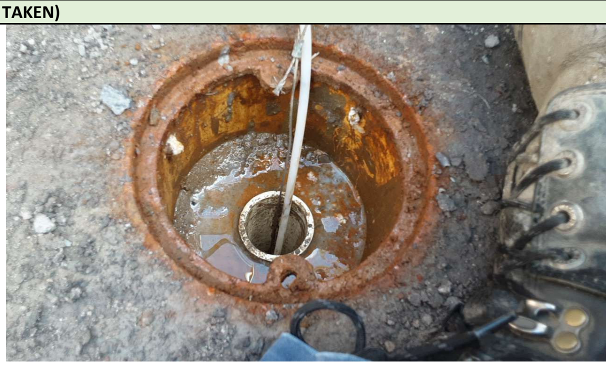

Photo 2: Bore condition

[39] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV226_s
Job No:	SC210108.03	**Date:**	22/10/2024 08:42
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.829567,151.025418
Weather:	Partly cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	4.06	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[41] (L)	1.925
Total Depth of Well (TD in m BTOC)	4.61	Minium Purge Volume[42]	5.775
Height of Standing Water Column (m)	0.55	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	19.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[41] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV009_w
Job No:	SC210108.03	**Date:**	21/10/2024 14:57
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.819914,151.022534
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.12
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.2	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[43] (L)	17.22
Total Depth of Well (TD in m BTOC)	7.12	Minium Purge Volume[44]	51.66
Height of Standing Water Column (m)	4.92	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	13.9	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
21/10	15:05	0.3		2.22	6.68	1,769	-193	0.21	2.4			1,144	22.9	as previous	as previous
21/10	15:08	0.5	0.1	2.22	6.7	1,745	-204.1	0.15	1.8			1,137	22.9	as previous	as previous
21/10	15:11	0.8	0.15	2.22	6.71	1,744	-204.6	0.2	2.3			1,131	22.9	as previous	as previous
21/10	15:14	1	0.1	2.21	6.72	1,731	-205	0.15	1.7			1,124	22.9	as previous	as previous
21/10	15:17	1.2	0.1	2.22	6.72	1,731	-207	0.13	1.6			1,124	22.9	as previous	as previous
21/10	15:20	1.3	0.05	2.22	6.72	1,710	-195.4	0.16	1.9			1,111.5	22.7	as previous	as previous
21/10	15:23	1.7	0.2	2.22	6.72	1,701	-197.7	0.17	2			1,105	22.9	as previous	as previous
21/10	15:26	1.9	0.1	2.22	6.72	1,708	-201.8	0.17	1.9			1,111.5	22.7	as previous	as previous
Other Observations	Clear, colourless, no odour														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:	
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV009_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Well head flooded			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[43] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV010
Job No:	SC210108.03	**Date:**	21/10/2024 14:04
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.819985,151.022153
Weather:	Partly cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.45	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[45] (L)	15.995
Total Depth of Well (TD in m BTOC)	7.02	Minium Purge Volume[46]	47.985
Height of Standing Water Column (m)	4.57	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	15.9	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
21/10	14:11	0.3		2.58	6.07	1,304	-175.6	0.38	4.4			851.5	23.2	as previous	as previous
21/10	14:14	0.6	0.15	2.65	6.05	1,323	-176.5	0.33	3.9			864	23.4	as previous	as previous
21/10	14:17	0.9	0.15	2.67	6.03	1,353	-182.4	0.21	2.5			877	23.4	as previous	as previous
21/10	14:20	1.2	0.1	2.71	6.03	1,363	-187.3	0.22	2.7			884	23.1	as previous	as previous
21/10	14:23	1.5	0.15	2.76	6.03	1,367	-193.6	0.35	4.2			890	23.7	as previous	as previous
21/10	14:26	1.8	0.15	2.77	6.03	1,370	-195.6	0.4	4.7			890	23.5	as previous	as previous
21/10	14:29	2	0.1	2.81	6.03	1,381	-199.1	0.42	4.9			897	23.6	as previous	as previous
21/10	14:32	2.4	0.2	2.82	6.03	1,388	-200.9	0.43	5			903	23	as previous	as previous

Other Observations: Pale copper br, slightly cloudy, no odour, trace sheen

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☐ Yes ☑ No ☐ Other:	
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:	
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate	
	SMW_ENV010	No duplicate sample collected	No duplicate sample collected	RS03	
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC				
Comment	Tubing had that rust coloured film. Replace GALC-MW18				

PHOTOS (IF TAKEN)

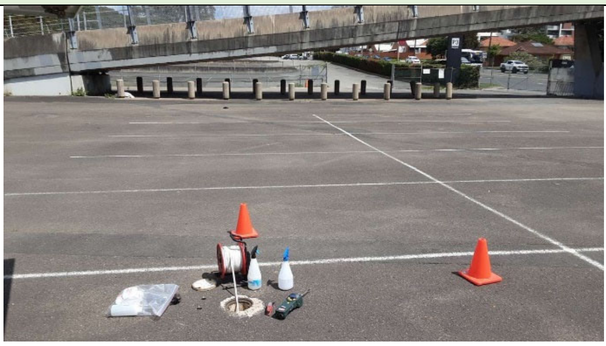

Photo1: Area

Photo 2: Bore condition

[45] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW26
Job No:	SC210108.03	**Date:**	21/10/2024 13:06
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814785,151.005456
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.18
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	17.15	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[47] (L)	44.415
Total Depth of Well (TD in m BTOC)	29.84	Minium Purge Volume[48]	133.245
Height of Standing Water Column (m)	12.69	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	7	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L						☐ No		
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Semi flooded			

PHOTOS (IF TAKEN)

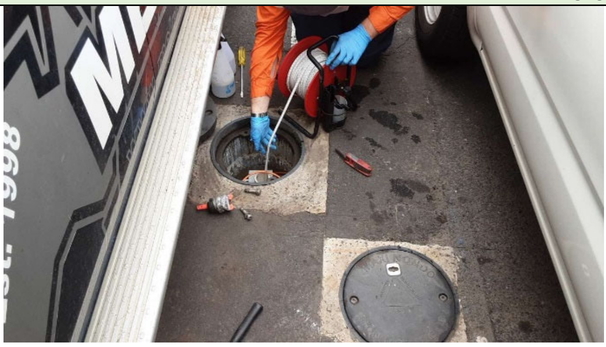

Photo1: Area

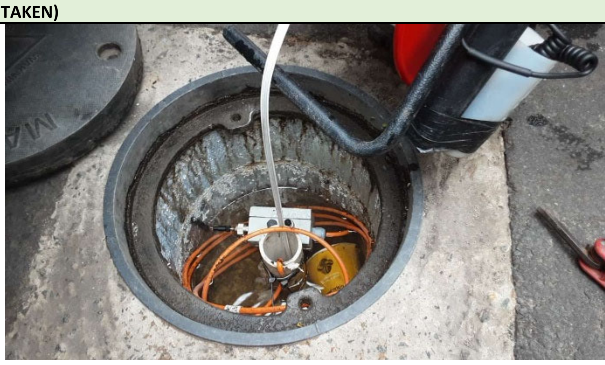

Photo 2: Bore condition

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[47] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW26A
Job No:	SC210108.03	**Date:**	21/10/2024 13:04
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814782,151.005423
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	4.83	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[49] (L)	16.555
Total Depth of Well (TD in m BTOC)	9.56	Minium Purge Volume[50]	49.665
Height of Standing Water Column (m)	4.73	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	15	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L				☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X ☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary / Duplicate / Triplicate / Rinsate		
Analysis/Bottles			
Comment			

PHOTOS (IF TAKEN)

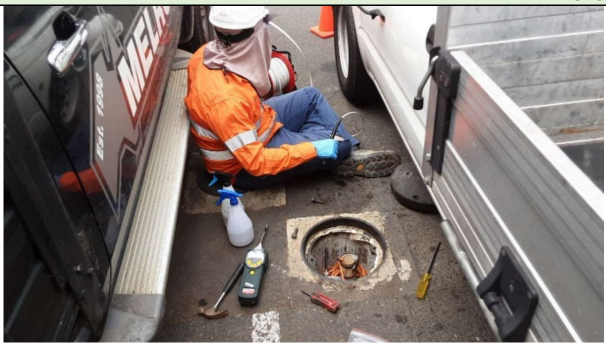

Photo1: Area

Photo 2: Bore condition

[49] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH002
Job No:	SC210108.03	**Date:**	21/10/2024 12:12
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.815068,151.005572
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.11
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	11.65	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[51] (L)	76.405
Total Depth of Well (TD in m BTOC)	33.48	Minium Purge Volume[52]	229.215
Height of Standing Water Column (m)	21.83	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	8.5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Wellhead flooded			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[51] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW33
Job No:	SC210108.03	**Date:**	21/10/2024 11:54
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814426,151.003325
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.2
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	9.83	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[53] (L)	78.89
Total Depth of Well (TD in m BTOC)	32.37	Minium Purge Volume[54]	236.67
Height of Standing Water Column (m)	22.54	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	10	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

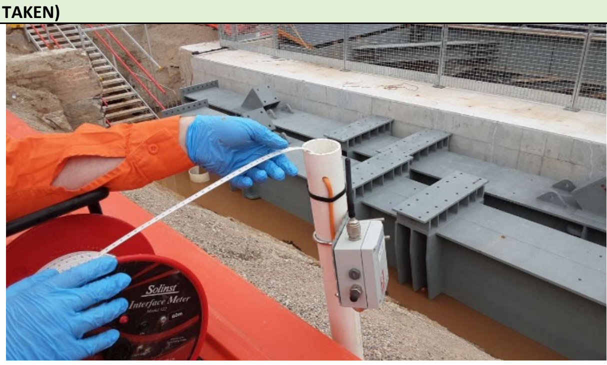

Photo 2: Bore condition

[53] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW32
Job No:	SC210108.03	**Date:**	21/10/2024 11:50
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.814844,151.002643
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.12
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	8.88	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[55] (L)	74.55
Total Depth of Well (TD in m BTOC)	30.18	Minium Purge Volume[56]	223.65
Height of Standing Water Column (m)	21.3	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes			At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-
Other Observations														

Note: final column **Odour** (units: -).

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X ☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate / Rinsate
Analysis/Bottles			
Comment	No cap but found nearby and replaced		

PHOTOS (IF TAKEN)

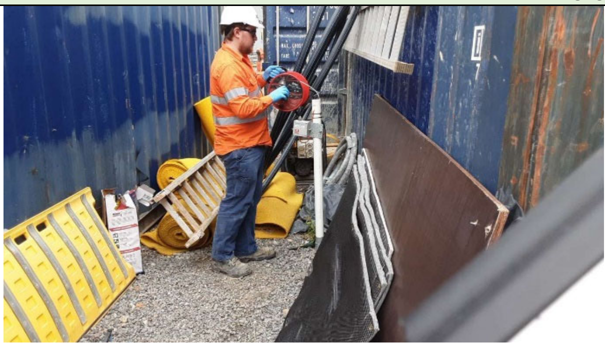

Photo1: Area

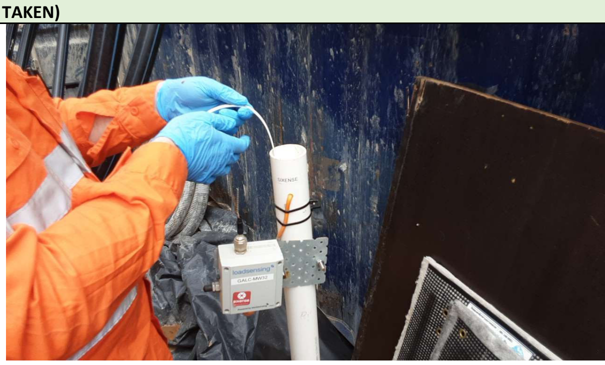

Photo 2: Bore condition

[55] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW31
Job No:	SC210108.03	**Date:**	21/10/2024 11:42
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.81422,151.004293
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.14
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	11.41	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[57] (L)	69.265
Total Depth of Well (TD in m BTOC)	31.2	Minium Purge Volume[58]	207.795
Height of Standing Water Column (m)	19.79	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	16.4	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

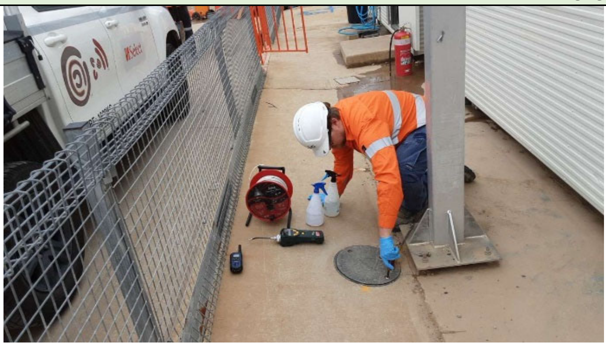

Photo1: Area

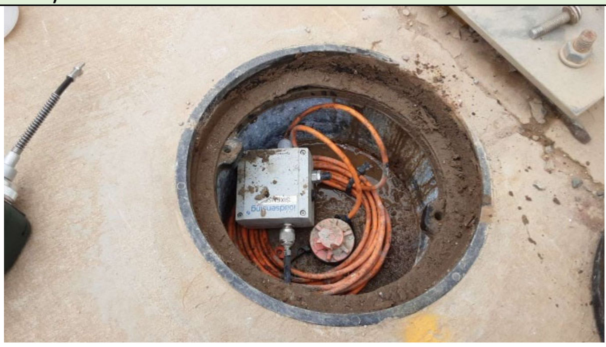

Photo 2: Bore condition

[57] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_BH15
Job No:	SC210108.03	**Date:**	21/10/2024 10:23
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813819,151.00427
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	5.41	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[59] (L)	16.03
Total Depth of Well (TD in m BTOC)	9.99	Minium Purge Volume[60]	48.09
Height of Standing Water Column (m)	4.58	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
21/10	10:29	0		5.6	5.66	977	22.5	0.37	3.4			611	20.1	as previous	as previous
21/10	10:32	0.2	0.1	5.6	5.64	895	-66	0.19	2.1			572	20	as previous	as previous
21/10	10:35	0.8	0.2	5.74	5.61	840	-85.9	0.22	2.4			546	19.9	as previous	as previous
21/10	10:38	1	0.1	5.84	5.6	826	-88.3	0.24	2.7			539.3	19.9	as previous	as previous
21/10	10:41	1.2	0.1	5.94	5.56	841	-92.3	0.28	3			546	19.9	as previous	as previous
21/10	10:44	1.4	0.1	5.95	5.59	839	-94.5	0.28	3			546	19.8	as previous	as previous
21/10	10:47	1.6	0.1	6.07	5.59	832	-104.9	0.28	3.1			539.5	20	as previous	as previous
21/10	10:49	1.8	0.1	6.17	5.59	828	-114.8	0.42	4.7			539.5	19.9	as previous	as previous
21/10	10:52	2	0.1	6.27	5.6	826	-126.4	0.44	4.8			539.5	19.9	as previous	as previous
21/10	10:55	2.2	0.1	6.35	5.6	825	-126.5	0.47	5.2			533	19.9	as previous	as previous
21/10	10:58	2.4	0.1	6.43	5.6	824	-126.6	0.48	5.4			533	20	as previous	as previous

Other Observations: Initially copper br and cloudy. No odour. Then less cloudy

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_BH15	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment: Well head near flooded but NC had used glove as lid

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[59] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_BH14
Job No:	SC210108.03	**Date:**	21/10/2024 08:18
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.815415,151.005839
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.05
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	5.28	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[61] (L)	2.345
Total Depth of Well (TD in m BTOC)	5.95	Minium Purge Volume[62]	7.035
Height of Standing Water Column (m)	0.67	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	13.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
21/10	08:31	0		5.36	6.97	501.5	-39.6	6.76	74.4			321.45	20.2	Semi-opaque, orange-brown	None
21/10	08:34	0.1	0.05	5.41	6.82	473.1	-47.3	8.32	92.1			305.5	20.2	as previous	as previous
21/10	08:37	0.2	0.05	5.43	6.77	464.3	-54.6	8.28	91.4			301.6	20.2	as previous	as previous
21/10	08:40	0.5	0.15	5.46	6.72	465.4	-48.3	8.14	90			302.55	20.2	as previous	as previous
21/10	08:43	0.7	0.1	5.47	6.63	472.5	-48.1	8.02	88.6			307.45	20.2	as previous	as previous
21/10	08:46	1	0.15	5.49	6.57	478.2	-49.7	7.93	876			311.35	20.2	as previous	as previous
21/10	08:49	1.2	0.07	5.51	6.52	482.2	-51.3	7.84	86.8			313.95	20.2	as previous	as previous
21/10	08:52	1.4	0.1	5.53	6.54	487.4	-42.5	7.75	85			316.55	20.2	as previous	as previous
21/10	08:55	1.7	0.15	5.55	6.49	489.1	-41	5.77	63.8			318.5	20.2	as previous	as previous
21/10	08:58	2	0.15	5.56	6.46	491.6	-35.2	5.66	62.5			319.8	20.2	as previous	as previous

Other Observations

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:	
Gauged	☐ Yes ☑ No	**Sampling Method:**	Peristatic	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_BH14	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	QCO3, QCO4			

PHOTOS (IF TAKEN)

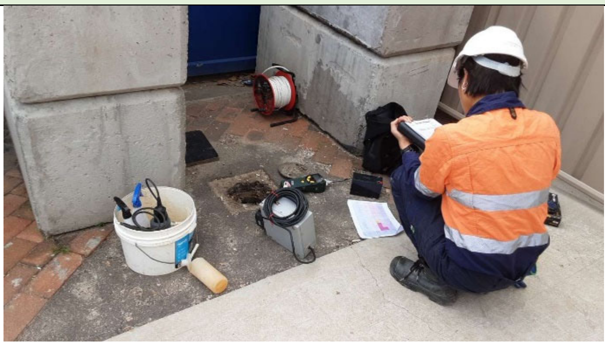

Photo1: Area

Photo 2: Bore condition

[61] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2]$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH008_w
Job No:	SC210108.03	**Date:**	18/10/2024 14:39
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.809304,150.990994
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.12
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	14.19	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[63] (L)	12.635
Total Depth of Well (TD in m BTOC)	17.8	Minium Purge Volume[64]	37.905
Height of Standing Water Column (m)	3.61	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

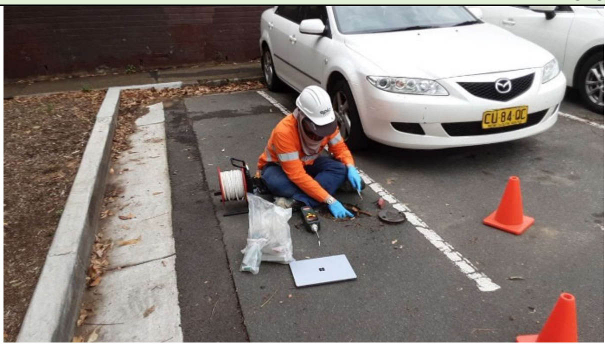

Photo1: Area

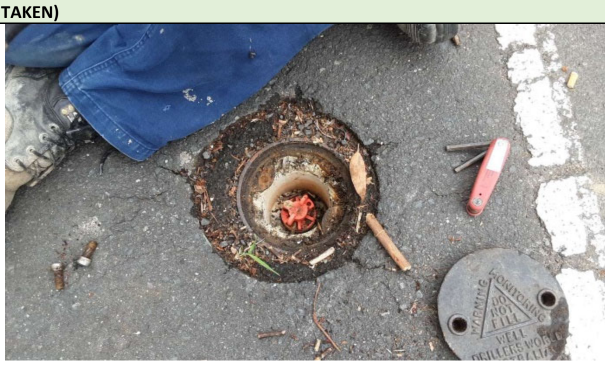

Photo 2: Bore condition

[63] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW47
Job No:	SC210108.03	**Date:**	18/10/2024 14:26
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.808588,150.987167
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	13.9	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[65] (L)	5.74
Total Depth of Well (TD in m BTOC)	15.54	Minium Purge Volume[66]	17.22
Height of Standing Water Column (m)	1.64	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[65] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2$ + 0.3 x ($\pi r(annulus)^2$ - $\pi r(casing)^2$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH03A
Job No:	SC210108.03	**Date:**	18/10/2024 13:04
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.809247,150.989717
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.2
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Bailer
Water Level Depth (WL in m BTOC)	18.15	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[67] (L)	12.915
Total Depth of Well (TD in m BTOC)	21.84	Minium Purge Volume[68]	38.745
Height of Standing Water Column (m)	3.69	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	9	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
18/10	13:36	1.5				17,925	-241	2.48	29.8			11,674	21.7	as previous	as previous

Other Observations: Sulfuric odpur, dark grey, very cloudy

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☐ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH03A	No duplicate sample collected	No duplicate sample collected	RS02

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment: HS stuck above logger, did not collect enough water

PHOTOS (IF TAKEN)

Photo1: Area

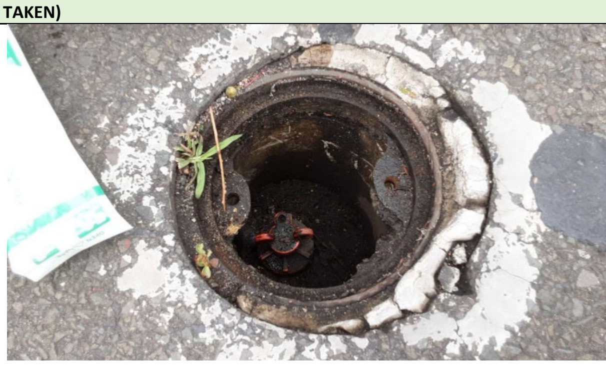

Photo 2: Bore condition

[67] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2]$*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH02
Job No:	SC210108.03	**Date:**	18/10/2024 12:04
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.808465,150.986228
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	6.6	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[69] (L)	49.525
Total Depth of Well (TD in m BTOC)	20.75	Minium Purge Volume[70]	148.575
Height of Standing Water Column (m)	14.15	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.4	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes				At L					☑ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
18/10	12:25	2				12,601	-220.1	1.7	20			8,190	21.6	as previous	as previous
Other Observations			Sulfuric odour, colourless, trace black silt												

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH02	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	Ph not working, says 15, well head flooded. Nobolts, added 1 bolt			

PHOTOS (IF TAKEN)

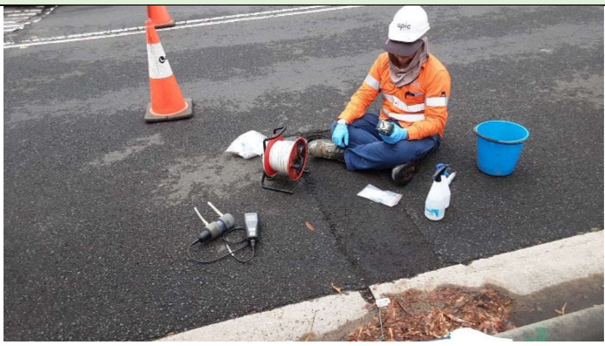

Photo1: Area

Photo 2: Bore condition

[69] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW38
Job No:	SC210108.03	**Date:**	18/10/2024 11:40
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.809641,150.988388
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.53
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	18.58	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[71] (L)	61.005
Total Depth of Well (TD in m BTOC)	36.01	Minium Purge Volume[72]	183.015
Height of Standing Water Column (m)	17.43	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

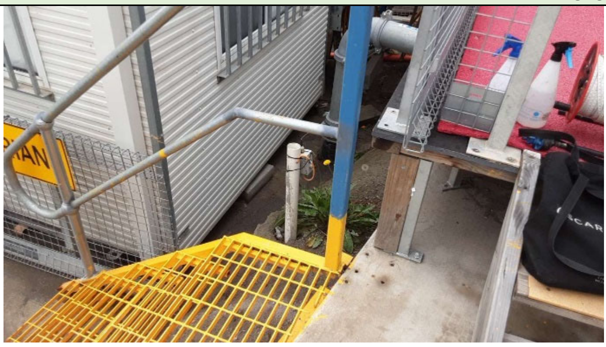

Photo1: Area

Photo 2: Bore condition

[71] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH23_w
Job No:	SC210108.03	**Date:**	18/10/2024 10:54
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.843717,151.063547
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	23.64	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[73] (L)	22.715
Total Depth of Well (TD in m BTOC)	30.13	Minium Purge Volume[74]	68.145
Height of Standing Water Column (m)	6.49	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

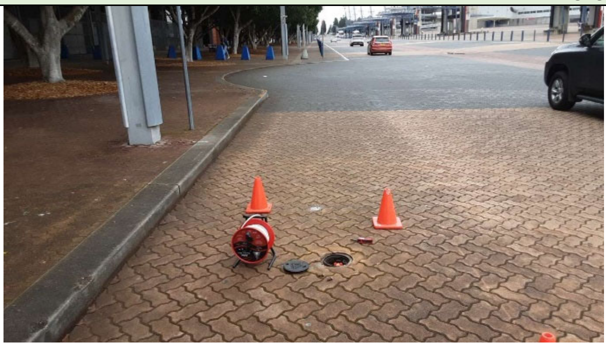

Photo1: Area

Photo 2: Bore condition

[73] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH22_w
Job No:	SC210108.03	**Date:**	18/10/2024 10:21
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.842205,151.058506
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.17
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	19.67	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[75] (L)	19.005
Total Depth of Well (TD in m BTOC)	25.1	Minium Purge Volume[76]	57.015
Height of Standing Water Column (m)	5.43	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☐ Yes				At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-
Other Observations														

Odour
-

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☑ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X ☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate / Rinsate
Analysis/Bottles			
Comment			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[75] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [$\pi r(casing)^2$ + 0.3 x ($\pi r(annulus)^2$ - $\pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_s
Job No:	SC210108.03	**Date:**	18/10/2024 07:42
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813113,151.00551
Weather:	Rainy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.07
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	5.05	Discharge Water Disposal Method	Drums
DNAPL Level Depth (DL in m BTOC)		Volume of Water[77] (L)	21.735
Total Depth of Well (TD in m BTOC)	11.26	Minium Purge Volume[78]	65.205
Height of Standing Water Column (m)	6.21	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	0.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
18/10	07:56	0.3		5.05	6.97	235.9	3.4		-0.3			149	18.9	as previous	as previous
18/10	07:59	0.8	0.17	5.05	6.04	205.8	39.7		-0.3			133.25	19	as previous	as previous
18/10	08:02	1	0.1	5.05	5.86	211.9	58.9		-0.3			138.45	18.9	as previous	as previous
18/10	08:05	1.2	0.1	5.05	5.92	219	62.1		-0.3			143.65	18.8	as previous	as previous
18/10	08:08	1.5	0.15	5.05	6.16	230	58.9		-0.3			150.15	18.8	as previous	as previous
18/10	08:11	1.8	0.15	5.05	6.26	233.1	56		-0.3			151.45	18.9	as previous	as previous
18/10	08:14	2	0.1	5.05	6.55	230.6	46.1		-0.3			150.15	18.9	as previous	as previous
18/10	08:17	2.2	0.1	5.05	6.88	238.8	36.1		-0.3			156.65	19	as previous	as previous
18/10	08:22	2.7	0.12	5.05	7.12	276.5	31.6		-0.3			180.05	19	as previous	as previous
18/10	08:25	2.9	0.1	5.05	7.24	313.8	17.6		-0.3			206	19	as previous	as previous
18/10	08:28	3.2	0.1	5.05	7.52	372	5.5		-0.3			243	19	as previous	as previous
18/10	08:31	3.5	0.15	5.05	7.81	389.4	-4.5		-0.3			253	19	as previous	as previous
18/10	08:34	3.8	0.15	5.05	7.92	400.6	-9.2		-0.3			260.65	19	as previous	as previous
18/10	08:37	4	0.1	5.05	7.99	401.9	-16.3		-0.3			261.3	19	as previous	as previous
18/10	08:40	4.2	0.1	5.05	8.04	407.5	-22		-0.3			265	19	as previous	as previous
18/10	08:43	4.4	0.1	5.05	8.66	418	-37.3		-0.3			272	19	as previous	as previous
18/10	08:46	4.8	0.2	5.05	9.13	422.7	-43.2		-0.3			274.94	19	as previous	as previous
18/10	08:49	5.1	0.1	5.05	8.89	424	-46.9		-0.3			276	18.9	as previous	as previous
18/10	08:52	5.4	0.15	5.05	8.99	427.3	-51.9		-0.3			278	18.7	as previous	as previous
18/10	08:55	5.6	0.1	5.05	9.6	438	-62.7		-0.3			286	18.6	as previous	as previous
18/10	08:58	5.8	0.1	5.05	9.67	450.5	-69.4		-0.3			293	18.6	as previous	as previous
18/10	09:01	6	0.1	5.05	9.92	454.9	-78.4		-0.3			295.75	18.6	as previous	as previous
18/10	09:04	6.2	0.1	5.05	9.9	458.5	-87		-0.3			298.5	18.6	as previous	as previous
18/10	09:07	6.5	0.15	5.05	9.97	462	-98		-0.3			300.3	18.7	as previous	as previous

Other Observations Clear, colourless, no odour

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH004_s	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment	ORP not fully stabilised			

PHOTOS (IF TAKEN)

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[77] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

	
Photo1: Area	**Photo 2: Bore condition**

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_w
Job No:	SC210108.03	**Date:**	18/10/2024 07:41
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.813241,151.005837
Weather:	Rainy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	9.39	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[79] (L)	51.38
Total Depth of Well (TD in m BTOC)	24.07	Minium Purge Volume[80]	154.14
Height of Standing Water Column (m)	14.68	Pump Intake Depth (mBTOC)	
Initial PID (ppm)		Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?			☐ Yes			At L						☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☑ Levelogger	☐ Level TROLL 400 ☑ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	PID missed due to accidentally hitting			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

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[79] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_w
Job No:	SC210108.03	**Date:**	17/10/2024 15:26
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.819792,151.022308
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.2
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Hydrasleeves
Water Level Depth (WL in m BTOC)	13.43	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[81] (L)	49
Total Depth of Well (TD in m BTOC)	27.43	Minium Purge Volume[82]	147
Height of Standing Water Column (m)	14	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	5.2	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
17/10	15:54	2			6.21	12,900	55.3	2.53	31.3			8,404	24.2	Colourless	None

Other Observations Black silt at bottom of HS

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	Hydrasleeves

Logger Type: ☐ Rugged TROLL 100 ☐ Level TROLL 400 ☐ Rugged BaroTROLL ☐ BarroTroll ☐ Levelogger ☑ CT2X ☐ SCOUT2X ☐ Other:

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_w	No duplicate sample collected	No duplicate sample collected	No rinsate sample collected

Analysis/Bottles: Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC

Comment

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[81] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW54
Job No:	SC210108.03	**Date:**	17/10/2024 13:38
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.810047,150.992565
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.1
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	2.1	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[83] (L)	9.975
Total Depth of Well (TD in m BTOC)	4.95	Minium Purge Volume[84]	29.925
Height of Standing Water Column (m)	2.85	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☐ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☑ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Logger v orange			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[83] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

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STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_s
Job No:	SC210108.03	**Date:**	17/10/2024 11:42
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.81977,151.02216
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.2
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	Peristatic
Water Level Depth (WL in m BTOC)	2.15	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[85] (L)	8.435
Total Depth of Well (TD in m BTOC)	4.56	Minium Purge Volume[86]	25.305
Height of Standing Water Column (m)	2.41	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	1.5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry? ☐ Yes At L ☑ No

Date	Time	Purged	Rate	SWL	pH	EC	ORP	DO	DO	Tur	Sal	TDS	Temp	Colour	Odour
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
17/10	14:22	0.4		2.15	5.86	344	67	0.58	6.3			223	20.5	as previous	as previous
17/10	14:25		0	2.15	5.66	358.4	87.3	0.47	4.7	90		237.25	21.1	as previous	as previous
17/10	14:28	0.8	0.27	2.15	5.64	368.9	93.6	0.39	4.3			239.5	21	as previous	as previous
17/10	14:31	1	0.05	2.13	5.65	375.2	90.3	0.45	5.1			239.5	21.2	as previous	as previous
17/10	14:34	1	0	2.13	5.64	371.7	95.2	0.39	4.4			243.1	21	as previous	as previous
17/10	14:38	1.5	0.17	2.14	5.66	383.1	98.2	0.39	4.4			249.6	21	as previous	as previous
17/10	14:41	2	0.25	2.14	5.64	389.8	100.6	0.37	4.1			254.15	21.2	as previous	as previous
17/10	14:44	2.2	0.07	2.13	5.65	403.1	100.9	0.35	4			263.25	21.1	as previous	as previous
17/10	14:47	2.5	0.15	2.15	5.65	415.3	101.1	0.36	4			270.4	21.1	as previous	as previous

Other Observations: Cloudy, no odour, copper br, no slick

WELL SAMPLING

Sampled	☑ Yes ☐ No		**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	Peristatic
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_s	QC01	QC01	RS01
Analysis/Bottles	Combo 8L (13 Metals - Low level), VOC Suite - ADWG Level, PFAS (Short Suite), Nutrient Suite, Ionic Balance, Hexavalent Chromium, TDS, pH, EC			
Comment				

PHOTOS (IF TAKEN)

Photo1: Area	**Photo 2: Bore condition**

[85] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ADD_BH02
Job No:	SC210108.03	**Date:**	17/10/2024 10:53
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.822507,151.021723
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Fair	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	27.69	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[87] (L)	8.925
Total Depth of Well (TD in m BTOC)	30.24	Minium Purge Volume[88]	26.775
Height of Standing Water Column (m)	2.55	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	6.5	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?		☐ Yes				At L					☐ No			
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes ☐ No ☐ Other:
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

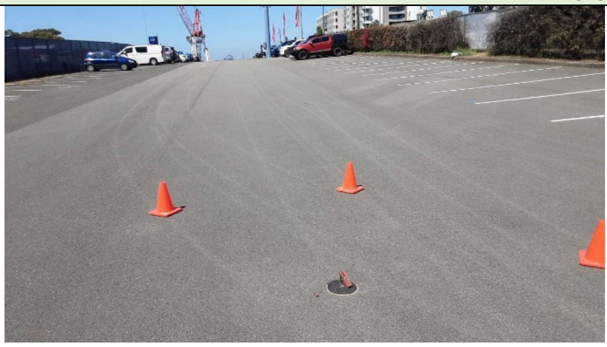

Photo1: Area

Photo 2: Bore condition

[87] Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - $[\pi r(casing)^2 + 0.3 \times (\pi r(annulus)^2 - \pi r(casing)^2$

[2] At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5

[3] Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 9 – October 2024

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW17
Job No:	SC210108.03	**Date:**	17/10/2024 09:18
Recorded By:	Natalie Chandra	**Lat / Long:**	-33.824119,151.021649
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.24
Well Material	PVC	Screen interval – Top (m BTOC)	
Well Head Condition	Good	Screen interval – Bottom (m BTOC)	
Well Diameter (mm)	50	Well Annulus (mm)	100

WELL PURGING

LNAPL Level Depth (LL in m BTOC)		Purging Method	
Water Level Depth (WL in m BTOC)	17.67	Discharge Water Disposal Method	
DNAPL Level Depth (DL in m BTOC)		Volume of Water[89] (L)	14.595
Total Depth of Well (TD in m BTOC)	21.84	Minium Purge Volume[90]	43.785
Height of Standing Water Column (m)	4.17	Pump Intake Depth (mBTOC)	
Initial PID (ppm)	5.8	Post Sampling PID Reading (ppm)	No PID reading collected

FIELD PARAMETER MEASUREMENT[3]

Purged dry?	☐ Yes	At L	☐ No												
Date	**Time**	**Purged**	**Rate**	**SWL**	**pH**	**EC**	**ORP**	**DO**	**DO**	**Tur**	**Sal**	**TDS**	**Temp**	**Colour**	**Odour**
MM/DD	HH:MM	L		mBTOC		µS/cm	mV	ppm	% Sat	NTU	ppt	mg/L	°C	-	-
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No		**Logger download**	☐ Yes ☑ No ☐ Other:
Gauged	☑ Yes ☐ No		**Sampling Method:**	
Logger Type	☐ Rugged TROLL 100 ☐ Levelogger	☐ Level TROLL 400 ☐ CT2X	☐ Rugged BaroTROLL ☐ SCOUT2X	☐ BarroTroll ☐ Other:
Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

[89] *Volume per 1m: casing volume + filter pack volume (effective porosity assumed at 0.3) - [πr(casing)² + 0.3 x (πr(annulus)² - πr(casing)²*

[2] *At a minimum, three well volumes should be purged. If possible, up to 5 well volumes is recommended to achieve an adequate purge Reference: Victorian EPA Groundwater Sampling Guidelines April 2000, Publication 669 - Section 4.5*

[3] *Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from USEPA Low-flow (minimal drawdown) Ground-water Sampling Procedures, April 1996 (ref. EPA/540/S-95/504)*

APPENDIX E – LABORATORY DOCUMENTATION

August 2024 GME

Subcon / Forward Lab / Split WO
Lab / Analysis: Envirolab
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC Fwd
WO No: ES2426006
Attach By PO / Internal Sheet:

epic ENVIRONMENTAL

Environmental Division
Sydney
Work Order Reference
ES2426006

Telephone : + 61-2-8784 8555

HT

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydne
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page	1 of 2	Sample Disposal After:	
Number of Eskies:	2		

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH/ OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, Total P, Reactive P, total oxidised N	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
						CONTAINER TYPE & PRESERVATIVE: water/liquid																		
1	QC01	6/8	W					2	1		2				/	/	/			/				
*	QC02							2	1		2				* Send to Envirolab									
2	CZ1_BH13_W							2	1		2			/	/	/	/	/	/	/				
3	SMW_WTP_BH25_S							2	1		2			/	/	/	/	/	/	/				
4	SMW_WTP_BH125_W							2	1		2			/	/	/	/	/	/	/				
5	CZ5_MW09							2	1		2			/	/	/	/	/	/	/				
~~6~~	~~SMW_ENV265~~																							
~~7~~ 6	RS01																						/	/
~~8~~ 7	TB01																					/		
~~9~~ 8	TS01																					/		
~~10~~ 9	CZ4e_MW03_W	7/8												/	/	/	/	/	/	/				
~~11~~ 10	CZ4e_MW02_W													/	/	/	/	/	/	/				
~~12~~ 11	SMW_ENY145_W													/	/	/	/	/	/	/				
~~13~~ 12	SMW_WTP_BH13_W													/	/	/	/	/	/	/				
~~14~~ ~~13~~	~~SMW_BH010_W~~																							
13 ~~15~~ 14	SMW-ENV039_W													/	/	/	/	/	/	/				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:		Received By:	
NAME: Natalie Chandra	SIGNATURE	NAME: Fmzu	SIGNATURE
DATE: 7/8		DATE: 8/8/24 12:19	

	Y	N
Custody Seals Intact	Y	N
Samples Received Chilled	Y	N
Method of Shipment		

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

epic ENVIRONMENTAL page

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 2 of 2		Sample Disposal After:	
Number of Eskies: 2.			

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
14 ~~15~~	RS02	7/8	W																				/	/
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:		Received By: Fran 8/8/24 12:12	Custody Seals Intact Y N
			Samples Received Chilled Y N
NAME Natalie Chandra	SIGNATURE DATE	NAME SIGNATURE DATE	Method of Shipment

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

Envirolab.

Chain of Custody Record

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: **TRH C6-C10/BTEXN**	Rinsate: **TRH C6-C40**	**8 metals**
	QC02														/	/	/			/				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE DATE 7/8	Received By: NAME SIGNATURE DATE	Custody Seals Intact Y N Samples Received Chilled Y N Method of Shipment

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2426006**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com .au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 4
Order number	: SCL220037.10	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: NATALIE CHANDRA		

Dates

Date Samples Received	: 08-Aug-2024 12:15	Issue Date	: 09-Aug-2024
Client Requested Due Date	: 15-Aug-2024	Scheduled Reporting Date	: **15-Aug-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 4.1'C 3.9'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 14 / 14

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).**
- **Unable to perform volatile fractions of TRH analysis on RS01 as VOC vials were not received.**
- **QC Forward analysis will be conducted by EnviroLab.**
- 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 - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - W-02 8 Metals	WATER - W-10 TRH/BTEX/VOC/PAH	WATER - W-13 OC/OP/PCB
ES2426006-001	06-Aug-2024 00:00	QC01	✓	✓	✓	✓	✓	✓	✓
ES2426006-002	06-Aug-2024 00:00	CZ1_BH13_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-003	06-Aug-2024 00:00	SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓
ES2426006-004	06-Aug-2024 00:00	SMW_WTP_BH25_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-005	06-Aug-2024 00:00	CZ5_MW09	✓	✓	✓	✓	✓	✓	✓
ES2426006-009	07-Aug-2024 00:00	CZ4e_MW03_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-010	07-Aug-2024 00:00	CZ4e_MW02_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-011	07-Aug-2024 00:00	SMW_ENV145_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-012	07-Aug-2024 00:00	SMW_WTP_BH13_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-013	07-Aug-2024 00:00	SMW_ENV039_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA075 Redox Potential	WATER - EP025 Dissolved Oxygen (DO)	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +
ES2426006-002	06-Aug-2024 00:00	CZ1_BH13_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-003	06-Aug-2024 00:00	SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓
ES2426006-004	06-Aug-2024 00:00	SMW_WTP_BH25_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-005	06-Aug-2024 00:00	CZ5_MW09	✓	✓	✓	✓	✓	✓	✓
ES2426006-009	07-Aug-2024 00:00	CZ4e_MW03_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-010	07-Aug-2024 00:00	CZ4e_MW02_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-011	07-Aug-2024 00:00	SMW_ENV145_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-012	07-Aug-2024 00:00	SMW_WTP_BH13_W	✓	✓	✓	✓	✓	✓	✓
ES2426006-013	07-Aug-2024 00:00	SMW_ENV039_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP071-SV TRH - SV Fractions only	WATER - EP080 BTEXN	WATER - TPH TRH (C6-C40)	WATER - W-02T 8 metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2426006-006	06-Aug-2024 00:00	RS01	✓			✓	
ES2426006-007	01-Aug-2024 00:00	TB01					✓
ES2426006-008	01-Aug-2024 00:00	TS01		✓			
ES2426006-014	07-Aug-2024 00:00	RS02			✓	✓	

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 Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
CZ1_BH13_W	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
CZ4e_MW02_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
CZ4e_MW03_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
SMW_ENV039_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_ENV145_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
EA075: Redox Potential							
CZ1_BH13_W	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
CZ4e_MW02_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
CZ4e_MW03_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
SMW_ENV039_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_ENV145_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
EP025: Oxygen - Dissolved							
CZ1_BH13_W	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
CZ4e_MW02_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
CZ4e_MW03_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
SMW_ENV039_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_ENV145_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	07-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	06-Aug-2024	08-Aug-2024	×	----	----

Requested Deliverables

INVOICES		
- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au
JONATHAN PICKERDEN		
- *AU Certificate of Analysis - NATA (COA)	Email	JPickerden@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	JPickerden@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	JPickerden@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
NATALIE CHANDRA		
- *AU Certificate of Analysis - NATA (COA)	Email	nchandra@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	nchandra@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	nchandra@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	nchandra@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	nchandra@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	nchandra@epicenvironmental.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2426006**	Page	: 1 of 35
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 08-Aug-2024 12:15
Order number	: SCL220037.10	Date Analysis Commenced	: 09-Aug-2024
C-O-C number	: ----	Issue Date	: 15-Aug-2024 17:47
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
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 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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- EK067G: LOR raised for TP due to sample matrix.
- It has been noted that Nitrite is greater than NOx, however this difference is within the limits of experimental variation.
- TDS by method EA-015 sample 4 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- 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.
- 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.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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)

Compound	CAS Number	LOR	Unit	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
Sampling date / time				06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
				ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	**7.24**	**7.59**	**5.44**	**6.30**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	**28200**	**3630**	**23600**	**11800**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	**18900**	**2140**	**19500**	**7410**
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	**2560**	**605**	**3180**	**1060**
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	**238**	**202**	**42.3**	**66.2**
pH Redox	----	0.01	pH Unit	----	**6.51**	**7.25**	**5.24**	**6.03**
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	----	**209**	**484**	**62**	**112**
Total Alkalinity as CaCO3	----	1	mg/L	----	**209**	**484**	**62**	**112**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	**2440**	**348**	**5500**	**538**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	**8760**	**658**	**6380**	**4060**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	**208**	**155**	**291**	**81**
Magnesium	7439-95-4	1	mg/L	----	**496**	**53**	**595**	**208**
Sodium	7440-23-5	1	mg/L	----	**5340**	**508**	**3960**	**2050**
Potassium	7440-09-7	1	mg/L	----	**124**	**23**	**105**	**5**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	**0.78**	<0.01
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.001**	**0.004**	**0.009**	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
			Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	**0.002**	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	**0.002**	**0.001**	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.008**	**0.001**	**0.006**	**0.030**	**0.008**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	**0.010**	**0.010**	**0.014**	**0.151**	**0.009**
Manganese	7439-96-5	0.001	mg/L	**0.118**	**0.438**	**0.151**	**0.938**	**0.121**
Iron	7439-89-6	0.05	mg/L	<0.05	**1.40**	**0.53**	**969**	**0.17**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<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	<0.01
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	**0.76**	**5.84**	**0.86**	**0.07**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	<0.01	**0.02**	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	<0.01	**3.63**	<0.01	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	<0.01	**3.65**	<0.01	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	**2.4**	**9.0**	**5.6**	**0.3**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	**2.4**	**12.6**	**5.6**	**0.3**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	<0.10	**0.04**	<0.10	<0.01
EK071G: Reactive Phosphorus as P by discrete analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
			Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	<0.01	<0.01	<0.01	<0.01
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	302	35.5	296	128
ø Total Cations	----	0.01	meq/L	----	----	----	283	----
ø Total Cations	----	0.01	meq/L	----	287	34.8	----	110
ø Ionic Balance	----	0.01	%	----	----	----	2.20	----
ø Ionic Balance	----	0.01	%	----	2.62	0.99	----	7.34
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	6.8	5.1	4.4	5.7
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
			Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
Sampling date / time				06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
				ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
			Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
			Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	**296**	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	**21**	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	**36**	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<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	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
				Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
	Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
	Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<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	<1.0
	Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<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	<1.0
	Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<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	<1.0
^	**Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^	**Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
	C6 - C9 Fraction	----	20	µg/L	<20	<20	**260**	<20	<20
	C10 - C14 Fraction	----	50	µg/L	<50	<50	**50**	<50	<50
	C15 - C28 Fraction	----	100	µg/L	<100	**290**	**270**	<100	<100
	C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^	**C10 - C36 Fraction (sum)**	----	50	µg/L	<50	**290**	**320**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
	C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	**260**	<20	<20
^	**C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	<20	**260**	<20	<20
	>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
	>C16 - C34 Fraction	----	100	µg/L	<100	**280**	**230**	<100	<100
	>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^	**>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	**280**	**230**	<100	<100
^	**>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
			Sampling date / time	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
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								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.15**	**0.50**	**0.07**	<0.02	**0.15**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.16**	**1.33**	**0.04**	<0.01	**0.14**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	**0.56**	**0.02**	<0.01	<0.01
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	**0.1**	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	**0.08**	**0.02**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.06**	**0.40**	**0.03**	<0.02	**0.06**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	**0.06**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	**0.08**	**0.02**	<0.01	<0.01
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.16**	**1.89**	**0.06**	<0.01	**0.14**
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.37**	**3.11**	**0.20**	<0.01	**0.35**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	QC01	CZ1_BH13_W	SMW_WTP_BH25_S	SMW_WTP_BH25_W	CZ5_MW09
Sampling date / time				06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00	06-Aug-2024 00:00
				ES2426006-001	ES2426006-002	ES2426006-003	ES2426006-004	ES2426006-005
				Result	Result	Result	Result	Result
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	98.8	94.8	85.1	102	120
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	111	104	99.4	108	131
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	101	97.3	88.4	101	117
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	111	90.4	110	107	110
Toluene-D8	2037-26-5	5	%	116	96.8	116	110	115
4-Bromofluorobenzene	460-00-4	5	%	114	96.0	112	108	113
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	29.3	27.3	24.5	28.6	28.5
2-Chlorophenol-D4	93951-73-6	1.0	%	60.4	54.5	51.0	55.6	57.7
2.4.6-Tribromophenol	118-79-6	1.0	%	72.2	69.1	63.7	68.2	74.7
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	86.1	81.4	76.5	81.3	84.5
Anthracene-d10	1719-06-8	1.0	%	81.9	78.3	75.1	80.7	92.5
4-Terphenyl-d14	1718-51-0	1.0	%	84.5	80.4	75.5	82.2	97.6
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	114	93.2	113	110	113
Toluene-D8	2037-26-5	2	%	118	98.7	119	112	117
4-Bromofluorobenzene	460-00-4	2	%	125	103	120	116	123
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	99.2	97.9	99.6	97.3	98.4
13C8-PFOA	----	0.02	%	105	105	104	107	105

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	----	**6.16**	**5.65**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	**5930**	**19400**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	**3750**	**13700**
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	----	----	**468**	**1890**
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	----	----	**89.3**	**92.3**
pH Redox	----	0.01	pH Unit	----	----	----	**5.88**	**5.28**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	**65**	**21**
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	**65**	**21**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	**662**	**1110**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	**1730**	**6310**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	**44**	**66**
Magnesium	7439-95-4	1	mg/L	----	----	----	**87**	**419**
Sodium	7440-23-5	1	mg/L	----	----	----	**1060**	**3170**
Potassium	7440-09-7	1	mg/L	----	----	----	**2**	**6**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	----	**0.02**	**0.75**
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	**0.004**
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	<0.0001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	**0.002**	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	**0.012**	**0.026**
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	**0.001**
Zinc	7440-66-6	0.005	mg/L	----	----	----	**0.033**	**0.063**
Manganese	7439-96-5	0.001	mg/L	----	----	----	**0.839**	**0.289**
Iron	7439-89-6	0.05	mg/L	----	----	----	**0.08**	**3.21**
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	<0.0001
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG049F: Dissolved Trivalent Chromium								
Trivalent Chromium	16065-83-1	0.01	mg/L	----	----	----	<0.01	<0.01
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	----	----	<0.01	<0.01
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	----	**0.02**	**0.12**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	----	<0.01	<0.01

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	----	<0.01	**2.86**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	----	<0.01	**2.86**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	----	**0.3**	**0.4**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	----	----	----	**0.3**	**3.3**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	----	**0.06**	**0.07**
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	----	<0.01	**0.02**
EN055: Ionic Balance								
ø **Total Anions**	----	0.01	meq/L	----	----	----	**63.9**	**202**
ø **Total Cations**	----	0.01	meq/L	----	----	----	**55.5**	**176**
ø **Ionic Balance**	----	0.01	%	----	----	----	**7.01**	**6.81**
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	----	----	**5.8**	**5.3**
EP066: Polychlorinated Biphenyls (PCB)								
^ **Total Polychlorinated biphenyls**	----	1	µg/L	----	----	----	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	----	----	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	----	----	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	----	----	----	<0.5	<0.5
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	----	----	----	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	----	----	----	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	----	----	----	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	----	----	----	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	----	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	----	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	----	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	----	----	----	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	----	----	----	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	----	----	----	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	----	----	----	<0.5	<0.5
4.4`-DDD	72-54-8	0.5	µg/L	----	----	----	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	----	----	----	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	----	----	<0.5	<0.5
4.4`-DDT	50-29-3	2.0	µg/L	----	----	----	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	----	----	----	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	----	----	----	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	----	----	----	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	----	----	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	----	----	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	----	----	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	----	----	----	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	----	----	----	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	----	----	----	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	----	----	----	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	----	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	----	----	----	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	----	----	----	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	----	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	----	----	----	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	----	----	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	----	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	----	----	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	----	----	----	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	----	----	----	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	----	----	----	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	----	----	----	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	----	<0.5	<0.5
EP071: Total Petroleum Hydrocarbons								
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	----	----	----	----
EP071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	----	----	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	----	----	----	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	----	----	----	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	----	----	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	----	----	----	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
Sampling date / time				06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
				ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
tert-Butylbenzene	98-06-6	5	µg/L	----	----	----	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	----	----	----	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	----	----	----	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	----	----	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	----	----	----	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	----	----	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	----	----	----	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	----	----	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	----	----	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	----	----	----	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	----	----	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	----	----	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	----	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	----	<50	<50
Chloromethane	74-87-3	50	µg/L	----	----	----	<50	<50
Vinyl chloride	75-01-4	50	µg/L	----	----	----	<50	<50
Bromomethane	74-83-9	50	µg/L	----	----	----	<50	<50
Chloroethane	75-00-3	50	µg/L	----	----	----	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	----	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	----	----	----	<5	<5
Iodomethane	74-88-4	5	µg/L	----	----	----	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	----	----	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	----	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	----	----	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	----	----	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	----	----	----	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	----	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	----	----	----	<5	<5
Trichloroethene	79-01-6	5	µg/L	----	----	----	<5	<5
Dibromomethane	74-95-3	5	µg/L	----	----	----	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	----	----	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	----	----	----	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	----	----	----	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	----	----	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	----	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	----	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	----	----	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	----	----	<5	<5
Pentachloroethane	76-01-7	5	µg/L	----	----	----	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	----	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	----	----	----	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	----	<5	<5
Bromobenzene	108-86-1	5	µg/L	----	----	----	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	----	----	----	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	----	----	----	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	----	----	----	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	----	----	----	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	----	----	----	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	----	----	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	----	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	----	----	----	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	----	----	----	<5	<5
Bromoform	75-25-2	5	µg/L	----	----	----	<5	<5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	----	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	----	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	----	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	----	----	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	<20	<20

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	µg/L	----	----	----	<50	<50
C15 - C28 Fraction	----	100	µg/L	----	----	----	<100	<100
C29 - C36 Fraction	----	50	µg/L	----	----	----	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	----	<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
>C16 - C34 Fraction	----	100	µg/L	----	----	----	<100	<100
>C34 - C40 Fraction	----	100	µg/L	----	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	----	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	----	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	**20**	<1	<1
Toluene	108-88-3	2	µg/L	----	<2	**20**	<2	<2
Ethylbenzene	100-41-4	2	µg/L	----	<2	**20**	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	**22**	<2	<2
ortho-Xylene	95-47-6	2	µg/L	----	<2	**22**	<2	<2
^ Total Xylenes	----	2	µg/L	----	<2	**44**	<2	<2
^ Sum of BTEX	----	1	µg/L	----	<1	**104**	<1	<1
Naphthalene	91-20-3	5	µg/L	----	<5	**23**	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	----	----	----	**0.02**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	----	----	----	**0.04**	<0.01
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	----	----	----	**0.01**	<0.01

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	----	----	----	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	----	----	----	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	----	----	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	----	----	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	----	----	**0.01**	<0.01
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	----	----	----	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	----	----	----	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	----	----	----	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	----	----	----	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	----	----	**0.05**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	----	----	**0.08**	<0.01
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	----	----	**114**	**106**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	----	**127**	**114**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	----	**114**	**103**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	----	----	**108**	**107**
Toluene-D8	2037-26-5	5	%	----	----	----	**112**	**108**
4-Bromofluorobenzene	460-00-4	5	%	----	----	----	**112**	**108**
EP075(SIM)S: Phenolic Compound Surrogates								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS01	TB01	TS01	CZ4e_MW03_W	CZ4e_MW02_W
			Sampling date / time	06-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426006-006	ES2426006-007	ES2426006-008	ES2426006-009	ES2426006-010
				Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
Phenol-d6	13127-88-3	1.0	%	----	----	----	**29.2**	**28.6**
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	----	**60.1**	**57.8**
2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	----	**76.6**	**65.4**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	----	**94.0**	**84.6**
Anthracene-d10	1719-06-8	1.0	%	----	----	----	**74.0**	**81.6**
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	----	**91.7**	**85.2**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	**111**	**107**	**111**	**110**
Toluene-D8	2037-26-5	2	%	----	**112**	**111**	**114**	**110**
4-Bromofluorobenzene	460-00-4	2	%	----	**120**	**112**	**121**	**118**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	----	----	**100**	**95.1**
13C8-PFOA	----	0.02	%	----	----	----	**105**	**106**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.36**	**7.07**	**6.80**	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**24900**	**2830**	**29500**	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**18600**	**1660**	**21500**	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**3720**	**542**	**4280**	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**197**	**152**	**49.6**	----	----
pH Redox	----	0.01	pH Unit	**6.14**	**6.93**	**6.40**	----	----
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	**127**	**247**	**358**	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**127**	**247**	**358**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**1120**	**200**	**1600**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**9230**	**712**	**10900**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**481**	**77**	**337**	----	----
Magnesium	7439-95-4	1	mg/L	**613**	**85**	**835**	----	----
Sodium	7440-23-5	1	mg/L	**4140**	**366**	**5080**	----	----
Potassium	7440-09-7	1	mg/L	**14**	**11**	**21**	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	**0.04**	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	**0.003**	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0002**	<0.0001	<0.0001	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	**1.63**	**0.004**	**0.005**	----	----
Nickel	7440-02-0	0.001	mg/L	**0.009**	**0.007**	**0.002**	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	**0.015**	**0.011**	**0.007**	----	----
Manganese	7439-96-5	0.001	mg/L	**0.233**	**0.027**	**1.03**	----	----
Iron	7439-89-6	0.05	mg/L	**10.5**	**0.13**	**8.68**	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<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	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.75**	<0.01	**0.86**	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.08**	<0.01	<0.01	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	**0.06**	<0.01	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.02**	**0.06**	<0.01	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**18.0**	**0.4**	**1.1**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**18.0**	**0.5**	**1.1**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**3.00**	**0.02**	<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	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**286**	**29.2**	**348**	----	----
ø Total Cations	----	0.01	meq/L	**255**	**27.0**	**307**	----	----
ø Ionic Balance	----	0.01	%	**5.79**	**3.81**	**6.24**	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**4.9**	**6.5**	**6.3**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
Sampling date / time				07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
				ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >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	<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	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	**0.02**	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	**0.02**	<0.01	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	**0.02**	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	**0.04**	<0.01	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**116**	**118**	**114**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**128**	**80.7**	**130**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**111**	**72.1**	**114**	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**109**	**106**	**114**	----	----
Toluene-D8	2037-26-5	5	%	**112**	**106**	**117**	----	----
4-Bromofluorobenzene	460-00-4	5	%	**112**	**105**	**115**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**31.8**	**36.1**	**28.6**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**62.6**	**76.0**	**56.6**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**68.7**	**92.9**	**69.2**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**93.5**	**110**	**78.8**	----	----
Anthracene-d10	1719-06-8	1.0	%	**87.5**	**111**	**87.3**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**90.1**	**116**	**91.2**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**112**	**110**	**117**	**108**	----
Toluene-D8	2037-26-5	2	%	**115**	**108**	**120**	**107**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV145_W	SMW_WTP_BH13_W	SMW_ENV039_W	RS02	----
			Sampling date / time	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	07-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426006-011	ES2426006-012	ES2426006-013	ES2426006-014	--------
				Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	2	%	**120**	**114**	**126**	**114**	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**99.5**	**97.8**	**101**	----	----
13C8-PFOA	----	0.02	%	**102**	**106**	**106**	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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

QUALITY CONTROL REPORT

Work Order	: **ES2426006**	Page	: 1 of 21
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 08-Aug-2024
Order number	: SCL220037.10	Date Analysis Commenced	: 09-Aug-2024
C-O-C number	: ----	Issue Date	: 15-Aug-2024
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **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: 5980042)									
ES2425961-006	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.64	7.75	1.4	0% - 20%
ES2426006-010	CZ4e_MW02_W	EA005-P: pH Value	----	0.01	pH Unit	5.65	5.65	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5980041)									
ES2425961-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	814	803	1.3	0% - 20%
ES2426006-010	CZ4e_MW02_W	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	19400	19400	0.2	0% - 20%
ES2425807-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	420	421	0.0	0% - 20%
ES2425916-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	285	282	0.9	0% - 20%
EW2403636-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	152	149	1.6	0% - 20%
EW2403638-011	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	93	101	8.9	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5983816)									
EN2408539-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	410	405	1.2	0% - 20%
ES2425861-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	454	444	2.4	0% - 20%
EW2403614-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	206	211	2.4	0% - 20%
EW2403638-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	80	80	0.0	No Limit
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5986569)									
EN2408621-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	4030	3990	1.1	0% - 20%
EN2408632-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	674	692	2.6	0% - 20%
ES2425950-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	8410	8440	0.3	0% - 20%
ES2426006-011	SMW_ENV145_W	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	18600	18500	0.6	0% - 20%
EA075: Redox Potential (QC Lot: 5983230)									

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 (%)
EA075: Redox Potential (QC Lot: 5983230) - continued									
EN2408447-001	Anonymous	EA075: Redox Potential	----	0.1	mV	443	450	1.7	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	3.47	3.45	0.6	0% - 20%
ES2426006-010	CZ4e_MW02_W	EA075: Redox Potential	----	0.1	mV	92.3	110	17.4	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	5.28	5.31	0.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5980039)									
ES2425807-001	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	53	54	3.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	53	54	3.1	0% - 20%
ES2425916-003	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	42	42	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	42	42	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5980043)									
ES2426006-010	CZ4e_MW02_W	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	21	20	5.4	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	21	20	5.4	0% - 20%
EW2403636-006	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	24	20	18.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	24	20	18.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5980007)									
ES2425999-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	97	96	1.4	0% - 20%
ES2426006-012	SMW_WTP_BH13_W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	200	200	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5980744)									
ES2426006-002	CZ1_BH13_W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2440	2430	0.3	0% - 20%
ES2426020-014	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	10	162	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5980008)									
ES2425999-005	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2410	2400	0.6	0% - 20%
ES2426006-013	SMW_ENV039_W	ED045G: Chloride	16887-00-6	1	mg/L	10900	10100	8.1	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5980743)									
ES2426006-002	CZ1_BH13_W	ED045G: Chloride	16887-00-6	1	mg/L	8760	8550	2.4	0% - 20%
ES2426020-014	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	8	9	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5984194)									
ES2425911-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	12	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	8	8	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5984194) - continued									
ES2425911-001	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	298	294	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	155	156	0.0	0% - 20%
ES2426006-010	CZ4e_MW02_W	ED093F: Calcium	7440-70-2	1	mg/L	66	66	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	419	416	0.7	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3170	3150	0.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984191)									
EB2426614-001	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	<0.001	<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: Manganese	7439-96-5	0.001	mg/L	0.055	0.057	2.4	0% - 20%
		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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2425977-002	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: Manganese	7439-96-5	0.001	mg/L	0.014	0.016	11.1	0% - 50%
		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	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.38	0.45	18.3	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.20	0.23	12.7	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984196)									
ES2426006-013	SMW_ENV039_W	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	0.003	0.003	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	0.005	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.03	1.04	1.1	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.008	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.04	0.06	35.1	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984196) - continued									
ES2426006-013	SMW_ENV039_W	EG020A-F: Iron	7439-89-6	0.05	mg/L	8.68	8.81	1.5	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 5985662)									
EN2408377-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	15.4	15.7	1.9	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.009	0.0	No Limit
ES2426020-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5984193)									
EB2426614-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2425977-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5984197)									
ES2426006-013	SMW_ENV039_W	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5984162)									
ES2426006-006	RS01	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5983218)									
EN2408666-002	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2426006-012	SMW_WTP_BH13_W	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5986800)									
EN2408632-010	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.84	0.84	0.0	0% - 20%
ES2426006-012	SMW_WTP_BH13_W	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5980002)									
EN2408542-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2425753-007	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5980009)									
ES2426006-010	CZ4e_MW02_W	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5980741)									
ES2426006-002	CZ1_BH13_W	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5980741) - continued									
ES2426020-014	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: 5986801)									
EN2408632-010	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (0.05)*	mg/L	0.64	0.68	6.2	0% - 50%
ES2426006-012	SMW_WTP_BH13_W	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.05	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5986797)									
EN2408632-010	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.7	1.6	0.0	0% - 50%
ES2426006-004	SMW_WTP_BH25_W	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	5.6	6.1	8.5	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5986796)									
EN2408632-010	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.53	0.54	2.2	0% - 20%
ES2426006-004	SMW_WTP_BH25_W	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	<0.10	<0.10	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5980006)									
ES2425977-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.01	0.0	No Limit
EW2403673-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5980742)									
ES2426006-002	CZ1_BH13_W	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2426020-014	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074B: Oxygenated Compounds (QC Lot: 5979378) - continued									
ES2426006-001	QC01	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5979378) - continued									
ES2426006-001	QC01	EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5979378) - continued									
ES2426006-009	CZ4e_MW03_W	EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5979378)									
ES2426006-001	QC01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5979377)									
ES2426006-001	QC01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5979377)									
ES2426006-001	QC01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2426006-009	CZ4e_MW03_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP080: BTEXN (QC Lot: 5979377)									
ES2426006-001	QC01	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2426006-009	CZ4e_MW03_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	**CAS Number**	**LOR**	**Unit**	**Result**	**Concentration**	**LCS**	**Low**	**High**
EA005P: pH by PC Titrator (QCLot: 5980042)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5980041)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	104	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5983816)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	98.8	87.0	109
				<10	293 mg/L	105	75.2	126
				<10	2410 mg/L	98.1	83.0	124
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5986569)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.8	87.0	109
				<10	293 mg/L	109	75.2	126
				<10	2410 mg/L	101	83.0	124
EA075: Redox Potential (QCLot: 5983230)								
EA075: Redox Potential	----	----	mV	----	234 mV	99.7	96.0	106
				----	300 mV	98.5	97.0	105
				----	86 mV	101	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5980039)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	87.2	81.0	115
				----	50 mg/L	97.1	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 5980043)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	86.5	81.0	115
				----	50 mg/L	97.5	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980007)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.6	82.0	122
				<1	500 mg/L	91.3	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980744)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.8	82.0	122
				<1	500 mg/L	101	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5980008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED045G: Chloride by Discrete Analyser (QCLot: 5980008) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	104	80.9	127
				<1	1000 mg/L	110	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5980743)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	96.2	80.9	127
				<1	1000 mg/L	100.0	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5984194)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	97.7	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.2	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.0	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984191)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	80.8	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	87.6	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	85.6	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	87.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	81.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.0	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	86.7	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	86.2	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	83.7	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	85.8	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984196)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	81.7	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	86.4	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	86.6	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	87.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	82.4	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.4	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.5	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	88.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	84.5	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	86.0	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5985662)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.4	82.0	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5985662) - continued								
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.6	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.3	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.1	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.7	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.3	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5984193)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.4	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5984197)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.5	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5984162)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	109	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 5983218)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	94.1	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5986800)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	104	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980002)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.0	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980009)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980741)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.7	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986801)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	107	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5986797)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	94.9	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	107	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5986796)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	89.8	71.3	126
				<0.01	0.442 mg/L	90.7	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5980006)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	104	85.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5980742)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	101	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5979047)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	86.3	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5979048)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	81.3	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	79.8	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	89.0	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	84.0	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	78.0	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	82.1	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	81.4	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	77.3	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	81.9	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	81.0	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	80.7	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	81.6	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	84.7	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	84.6	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	80.6	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	74.5	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	83.8	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	80.7	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	81.5	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	86.4	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	97.4	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5979048)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	75.3	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	75.3	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.2	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	75.8	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	77.4	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	79.2	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	82.3	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	81.4	68.4	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5979048) - continued								
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	78.7	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	81.8	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	81.4	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	80.4	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	82.5	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	81.0	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	78.3	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	91.6	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	77.5	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	78.7	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	82.2	51.6	128
EP071: Total Petroleum Hydrocarbons (QCLot: 5979049)								
EP071-SV: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	68.5	51.5	96.4
EP071-SV: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	81.3	62.3	107
EP071-SV: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	90.4	57.2	122
EP071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5979049)								
EP071-SV: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	72.6	53.3	93.7
EP071-SV: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	86.7	54.9	115
EP071-SV: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	57.0	50.0	118
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5979378)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	97.7	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	96.7	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	98.5	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	99.9	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	98.7	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	97.7	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.6	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.4	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5979378)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	104	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	101	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	105	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	94.9	65.0	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 5979378)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	95.8	72.8	127
EP074D: Fumigants (QCLot: 5979378)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	101	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	98.2	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	97.5	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	101	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5979378)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	89.7	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	95.6	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	103	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	107	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	100	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	106	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	101	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	94.7	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	102	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	102	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	103	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	100.0	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	97.2	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	104	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	105	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	106	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	106	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	103	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	96.1	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	93.5	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	102	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	104	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	109	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	89.8	71.8	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5979378) - continued								
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	89.2	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	102	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5979378)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	101	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	99.0	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	98.6	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.8	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.1	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	102	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	97.3	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	98.0	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	112	67.0	123
EP074G: Trihalomethanes (QCLot: 5979378)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	108	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	98.2	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	92.9	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	94.8	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5979046)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.2	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	73.8	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	73.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	75.3	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	74.5	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	74.4	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	76.3	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	77.8	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	70.7	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.5	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	73.6	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	69.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	75.1	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.1	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	75.6	61.2	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5979046) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	76.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5979045)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	67.9	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	104	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	78.9	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5979377)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.5	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5979045)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	76.8	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	110	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	78.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5979377)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	96.9	75.0	127
EP080: BTEXN (QCLot: 5979377)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	112	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	114	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	119	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5979534)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	96.2	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	88.4	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	98.0	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5979534)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	90.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.9	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	96.9	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.3	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5979534)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	82.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	105	64.0	140

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5979534) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	107	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	93.8	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980007)							
ES2425999-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980744)							
ES2426006-002	CZ1_BH13_W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5980008)							
ES2425999-005	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5980743)							
ES2426006-002	CZ1_BH13_W	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984191)							
EB2426614-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	83.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	82.4	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	83.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	84.4	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	78.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	83.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	83.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	85.8	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984196)							
ES2426006-012	SMW_WTP_BH13_W	EG020A-F: Arsenic	7440-38-2	1 mg/L	91.0	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	85.0	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	83.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	86.0	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	77.8	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984196) - continued							
ES2426006-012	SMW_WTP_BH13_W	EG020A-F: Manganese	7439-96-5	1 mg/L	83.4	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	86.4	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	89.6	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5985662)							
EN2408377-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.2	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.9	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.7	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	# Not Determined	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	94.8	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.0	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5984193)							
EB2426614-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	106	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5984197)							
ES2426006-011	SMW_ENV145_W	EG035F: Mercury	7439-97-6	0.01 mg/L	92.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5984162)							
ES2426006-014	RS02	EG035T: Mercury	7439-97-6	0.01 mg/L	103	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5983218)							
EN2408666-002	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	95.4	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5986800)							
EN2408632-010	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	88.5	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980002)							
EN2408542-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	103	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980009)							
ES2426006-010	CZ4e_MW02_W	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	109	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980741)							
ES2426006-002	CZ1_BH13_W	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	99.3	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986801)							
EN2408632-010	Anonymous	EK059G: Nitrite + Nitrate as N	----	2.5 mg/L	98.5	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5986797)							
EN2408632-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	104	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5986796)							
EN2408632-011	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	103	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5980006)							
ES2425977-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	102	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5980742)							
ES2426006-002	CZ1_BH13_W	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	111	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5979378)							
ES2426006-001	QC01	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	86.2	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	104	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5979378)							
ES2426006-001	QC01	EP074: Chlorobenzene	108-90-7	25 µg/L	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5979377)							
ES2426006-001	QC01	EP080: C6 - C9 Fraction	----	325 µg/L	103	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5979377)							
ES2426006-001	QC01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	102	70.0	130
EP080: BTEXN (QCLot: 5979377)							
ES2426006-001	QC01	EP080: Benzene	71-43-2	25 µg/L	98.1	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	112	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	110	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	110	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	109	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2426006**	Page	: 1 of 20
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 08-Aug-2024
Site	: ----	Issue Date	: 15-Aug-2024
Sampler	: NATALIE CHANDRA	No. of samples received	: 14
Order number	: SCL220037.10	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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **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 SO4 2- by DA	ES2425999--004	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2426006--002	CZ1_BH13_W	**Sulfate as SO4 - 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	ES2425999--005	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2426006--002	CZ1_BH13_W	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG020T: Total Metals by ICP-MS	EN2408377--002	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES2426006-012	SMW_WTP_BH13_W	**2-Fluorobiphenyl**	321-60-8	110 %	20.0-104 %	**Recovery greater than upper data quality objective**
EP075(SIM)T: PAH Surrogates	ES2426006-012	SMW_WTP_BH13_W	**4-Terphenyl-d14**	1718-51-0	116 %	32.0-112 %	**Recovery greater than upper data quality objective**

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 CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	----	----	----	09-Aug-2024	06-Aug-2024	**3**
Clear Plastic Bottle - Natural CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	----	----	----	09-Aug-2024	07-Aug-2024	**2**
EA075: Redox Potential						

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Due for extraction	Days overdue	Analysis: Date analysed	Due for analysis	Days overdue
EA075: Redox Potential - Analysis Holding Time Compliance							
Clear Plastic Bottle - Natural CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	----	----	----	12-Aug-2024	06-Aug-2024	**6**
Clear Plastic Bottle - Natural CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	----	----	----	12-Aug-2024	07-Aug-2024	**5**
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural SMW_WTP_BH25_W		----	----	----	10-Aug-2024	08-Aug-2024	**2**
Clear Plastic Bottle - Natural CZ1_BH13_W, CZ5_MW09	SMW_WTP_BH25_S,	----	----	----	12-Aug-2024	08-Aug-2024	**4**
Clear Plastic Bottle - Natural SMW_ENV145_W		----	----	----	10-Aug-2024	09-Aug-2024	**1**
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	----	----	----	12-Aug-2024	08-Aug-2024	**4**
Clear Plastic Bottle - Natural CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	----	----	----	10-Aug-2024	09-Aug-2024	**1**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	----	----	----	09-Aug-2024	06-Aug-2024	**3**
Clear Plastic Bottle - Natural CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	----	----	----	09-Aug-2024	07-Aug-2024	**2**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Regular	Rate (%): Actual	Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP) - Continued						
TRH - Semivolatile Fraction	EP071	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fractions Only	EP071-SV	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)						
Conductivity by Auto Titrator	EA010-P	4	51	7.84	8.33	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fractions Only	EP071-SV	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*		*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	----	----	----	**09-Aug-2024**	06-Aug-2024	✘
Clear Plastic Bottle - Natural (EA005-P) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	----	----	----	**09-Aug-2024**	07-Aug-2024	✘
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	----	----	----	**12-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Natural (EA010-P) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	----	----	----	**12-Aug-2024**	04-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*		*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	----	----	----	**12-Aug-2024**	13-Aug-2024	✓
Clear Plastic Bottle - Natural (EA015H) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	----	----	----	**13-Aug-2024**	14-Aug-2024	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	----	----	----	**13-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	----	----	----	**13-Aug-2024**	04-Sep-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	----	----	----	**12-Aug-2024**	06-Aug-2024	×
Clear Plastic Bottle - Natural (EA075) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	----	----	----	**12-Aug-2024**	07-Aug-2024	×
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) CZ1_BH13_W, SMW_WTP_BH25_W,	SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	----	----	----	**12-Aug-2024**	20-Aug-2024	✓
Clear Plastic Bottle - Natural (ED037-P) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	----	----	----	**12-Aug-2024**	21-Aug-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) CZ1_BH13_W,	SMW_WTP_BH25_W	**06-Aug-2024**	----	----	----	**10-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Natural (ED041G) SMW_WTP_BH25_S,	CZ5_MW09	**06-Aug-2024**	----	----	----	**12-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Natural (ED041G) CZ4e_MW02_W, SMW_ENV039_W	SMW_ENV145_W,	**07-Aug-2024**	----	----	----	**09-Aug-2024**	04-Sep-2024	✓
Clear Plastic Bottle - Natural (ED041G) CZ4e_MW03_W,	SMW_WTP_BH13_W	**07-Aug-2024**	----	----	----	**10-Aug-2024**	04-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) CZ1_BH13_W, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**10-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Natural (ED045G) SMW_WTP_BH25_S	**06-Aug-2024**	**----**	----	----	**12-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Natural (ED045G) CZ4e_MW02_W, SMW_ENV145_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**09-Aug-2024**	04-Sep-2024	✓
Clear Plastic Bottle - Natural (ED045G) CZ4e_MW03_W, SMW_WTP_BH13_W	**07-Aug-2024**	**----**	----	----	**10-Aug-2024**	04-Sep-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**13-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**13-Aug-2024**	04-Sep-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**13-Aug-2024**	02-Feb-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**13-Aug-2024**	03-Feb-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS01	**06-Aug-2024**	**13-Aug-2024**	02-Feb-2025	✓	**13-Aug-2024**	02-Feb-2025	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS02	**07-Aug-2024**	**13-Aug-2024**	03-Feb-2025	✓	**13-Aug-2024**	03-Feb-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**15-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**15-Aug-2024**	04-Sep-2024	✓

Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS01	**06-Aug-2024**	**----**	----	----	**14-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS02	**07-Aug-2024**	**----**	----	----	**14-Aug-2024**	04-Sep-2024	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**12-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**12-Aug-2024**	04-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**14-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**14-Aug-2024**	04-Sep-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) SMW_WTP_BH25_W	**06-Aug-2024**	**----**	----	----	**10-Aug-2024**	08-Aug-2024	✘
Clear Plastic Bottle - Natural (EK057G) CZ1_BH13_W, SMW_WTP_BH25_S, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**12-Aug-2024**	08-Aug-2024	✘
Clear Plastic Bottle - Natural (EK057G) CZ4e_MW03_W, CZ4e_MW02_W	**07-Aug-2024**	**----**	----	----	**09-Aug-2024**	09-Aug-2024	✓
Clear Plastic Bottle - Natural (EK057G) SMW_ENV145_W	**07-Aug-2024**	**----**	----	----	**10-Aug-2024**	09-Aug-2024	✘
Clear Plastic Bottle - Natural (EK057G) SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**09-Aug-2024**	09-Aug-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**----**	----	----	**14-Aug-2024**	03-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**----**	----	----	**14-Aug-2024**	04-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	06-Aug-2024	14-Aug-2024	03-Sep-2024	✓	14-Aug-2024	03-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	07-Aug-2024	14-Aug-2024	04-Sep-2024	✓	14-Aug-2024	04-Sep-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	06-Aug-2024	14-Aug-2024	03-Sep-2024	✓	14-Aug-2024	03-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	07-Aug-2024	14-Aug-2024	04-Sep-2024	✓	14-Aug-2024	04-Sep-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	06-Aug-2024	----	----	----	12-Aug-2024	08-Aug-2024	×
Clear Plastic Bottle - Natural (EK071G) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	07-Aug-2024	----	----	----	10-Aug-2024	09-Aug-2024	×
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	06-Aug-2024	----	----	----	09-Aug-2024	06-Aug-2024	×
Clear Plastic Bottle - Natural (EP025) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	07-Aug-2024	----	----	----	09-Aug-2024	07-Aug-2024	×
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC01, CZ1_BH13_W, SMW_WTP_BH25_W, CZ5_MW09	06-Aug-2024	09-Aug-2024	13-Aug-2024	✓	13-Aug-2024	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP066) SMW_WTP_BH25_S	06-Aug-2024	09-Aug-2024	13-Aug-2024	✓	14-Aug-2024	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP066) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	07-Aug-2024	09-Aug-2024	14-Aug-2024	✓	13-Aug-2024	18-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**13-Aug-2024**	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP068) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	14-Aug-2024	✓	**13-Aug-2024**	18-Sep-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**13-Aug-2024**	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP068) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	14-Aug-2024	✓	**13-Aug-2024**	18-Sep-2024	✓
EP071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071-SV) RS01		**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**14-Aug-2024**	18-Sep-2024	✓
EP071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071-SV) RS01		**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**14-Aug-2024**	18-Sep-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓

Matrix: **WATER**

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Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**13-Aug-2024**	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	14-Aug-2024	✓	**13-Aug-2024**	18-Sep-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**14-Aug-2024**	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP071) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W,	CZ4e_MW02_W, SMW_WTP_BH13_W, RS02	**07-Aug-2024**	**09-Aug-2024**	14-Aug-2024	✓	**14-Aug-2024**	18-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB01		**01-Aug-2024**	**09-Aug-2024**	15-Aug-2024	✓	**09-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC01, SMW_WTP_BH25_S, CZ5_MW09	CZ1_BH13_W, SMW_WTP_BH25_W,	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ4e_MW03_W, SMW_ENV145_W, SMW_ENV039_W	CZ4e_MW02_W, SMW_WTP_BH13_W,	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS02		**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**10-Aug-2024**	21-Aug-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**09-Aug-2024**	13-Aug-2024	✓	**14-Aug-2024**	18-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP071) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W, RS02	**07-Aug-2024**	**09-Aug-2024**	14-Aug-2024	✓	**14-Aug-2024**	18-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB01	**01-Aug-2024**	**09-Aug-2024**	15-Aug-2024	✓	**09-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS02	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**10-Aug-2024**	21-Aug-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB01, TS01	**01-Aug-2024**	**09-Aug-2024**	15-Aug-2024	✓	**09-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**09-Aug-2024**	20-Aug-2024	✓	**09-Aug-2024**	20-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**09-Aug-2024**	21-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS02	**07-Aug-2024**	**09-Aug-2024**	21-Aug-2024	✓	**10-Aug-2024**	21-Aug-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**12-Aug-2024**	02-Feb-2025	✓	**14-Aug-2024**	02-Feb-2025	✓
HDPE (no PTFE) (EP231X) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**12-Aug-2024**	03-Feb-2025	✓	**14-Aug-2024**	03-Feb-2025	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**12-Aug-2024**	02-Feb-2025	✓	**14-Aug-2024**	02-Feb-2025	✓
HDPE (no PTFE) (EP231X) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**12-Aug-2024**	03-Feb-2025	✓	**14-Aug-2024**	03-Feb-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**12-Aug-2024**	02-Feb-2025	✓	**14-Aug-2024**	02-Feb-2025	✓
HDPE (no PTFE) (EP231X) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**12-Aug-2024**	03-Feb-2025	✓	**14-Aug-2024**	03-Feb-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) QC01, CZ1_BH13_W, SMW_WTP_BH25_S, SMW_WTP_BH25_W, CZ5_MW09	**06-Aug-2024**	**12-Aug-2024**	02-Feb-2025	✓	**14-Aug-2024**	02-Feb-2025	✓
HDPE (no PTFE) (EP231X) CZ4e_MW03_W, CZ4e_MW02_W, SMW_ENV145_W, SMW_WTP_BH13_W, SMW_ENV039_W	**07-Aug-2024**	**12-Aug-2024**	03-Feb-2025	✓	**14-Aug-2024**	03-Feb-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	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	16	**12.50**	**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	5	46	**10.87**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	10	**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
Polychlorinated Biphenyls (PCB)	EP066	0	10	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	31	**12.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	8	80	**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 Mercury by FIMS	EG035T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fractions Only	EP071-SV	0	1	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	15	**13.33**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	51	**7.84**	**8.33**	✗	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**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							
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	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	10	**10.00**	**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
Polychlorinated Biphenyls (PCB)	EP066	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	10	80	**12.50**	**12.50**	✓	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 Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fractions Only	EP071-SV	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**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	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	80	**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 Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	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*	
Method Blanks (MB) - Continued							
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fractions Only	EP071-SV	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**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	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	10	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	10	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	33	**6.06**	**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 Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fractions Only	EP071-SV	0	1	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	15	**6.67**	**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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate forms highly-coloured ferric thiocynate 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)

Analytical Methods	Method	Matrix	Method Descriptions
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)
TRH - Semivolatile Fractions Only	EP071-SV	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 NEPM Schedule B(3).
Volatile Organic Compounds	EP074	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. This method is compliant with 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 LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
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.

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Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 1		Sample Disposal After:	
Number of Eskies: 1			

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid: 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: **TRH C6-C10/BTEXN**	Rinsate: **TRH C6-C40**	Rinsate: **8 metals**
1	GALC-MW16_W	8/8	W											/	/	/	/	/	/	/				
2	GALC-MW18	|	|											/	/	/	/	/	/	/				
3	TS02		|																			/		
4	TB02		|																			/		
5	RS03	8/8	|																				/	/
6	SMW-BH004_S	9/8	|											/	/	/	/	/	/	/				
7	SMW_WTP_BH03A_W	"	|											/	/	/	/	/	/	/				
8	SMW_WTP_BH02_W	"	|											/	/	/	/	/	/	/				
9	RS04	"	|																				/	/
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE DATE 9/8	Received By: NAME Wells SIGNATURE DATE 9/8/24 1535	Custody Seals Intact	Y N
		Samples Received Chilled	Y N
		Method of Shipment	

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2426147**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: MR JONATHAN COFFEY	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: jcoffey@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 3
Order number	: SCL220037.10	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: NC		

Dates

Date Samples Received	: 09-Aug-2024 15:35	Issue Date	: 09-Aug-2024
Client Requested Due Date	: 16-Aug-2024	Scheduled Reporting Date	: **16-Aug-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.2'C, 6.5'C, 5.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 9 / 9

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- 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.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Dissolved Mercury by FIMS : EG035F		
RS03	- Amber Glass Bottle - Unpreserved	- Clear Plastic Bottle - Nitric Acid; Filtered
RS04	- Amber Glass Bottle - Unpreserved	- Clear Plastic Bottle - Nitric Acid; Filtered
Dissolved Metals by ICP-MS - Suite A : EG020A-F		
RS03	- Amber Glass Bottle - Unpreserved	- Clear Plastic Bottle - Nitric Acid; Filtered
RS04	- Amber Glass Bottle - Unpreserved	- Clear Plastic Bottle - Nitric Acid; Filtered

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 - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA075 Redox Potential	WATER - EP025 Dissolved Oxygen (DO)	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - W-02 8 Metals
ES2426147-001	08-Aug-2024 00:00	GALC-MW16_W	✓	✓	✓	✓	✓	✓	✓
ES2426147-002	08-Aug-2024 00:00	GALC-MW18	✓	✓	✓	✓	✓	✓	✓
ES2426147-006	09-Aug-2024 00:00	SMW_BH004_S	✓	✓	✓	✓	✓	✓	✓
ES2426147-007	09-Aug-2024 00:00	SMW_WTP_BH03A_W	✓	✓	✓	✓	✓	✓	✓
ES2426147-008	09-Aug-2024 00:00	SMW_WTP_BH02_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-10 TRH/BTEX/VOC/PAH	WATER - W-13 OC/OP/PCB
ES2426147-001	08-Aug-2024 00:00	GALC-MW16_W	✓	✓	✓	✓	✓	✓	✓
ES2426147-002	08-Aug-2024 00:00	GALC-MW18	✓	✓	✓	✓	✓	✓	✓
ES2426147-006	09-Aug-2024 00:00	SMW_BH004_S	✓	✓	✓	✓	✓	✓	✓
ES2426147-007	09-Aug-2024 00:00	SMW_WTP_BH03A_W	✓	✓	✓	✓	✓	✓	✓
ES2426147-008	09-Aug-2024 00:00	SMW_WTP_BH02_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - W-05 TRH/BTEXN/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2426147-003	01-Aug-2024 00:00	TS02	✓		
ES2426147-004	01-Aug-2024 00:00	TB02			✓
ES2426147-005	08-Aug-2024 00:00	RS03		✓	
ES2426147-009	09-Aug-2024 00:00	RS04		✓	

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							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	08-Aug-2024	09-Aug-2024	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	08-Aug-2024	09-Aug-2024	×	----	----
EA075: Redox Potential							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	08-Aug-2024	09-Aug-2024	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	08-Aug-2024	09-Aug-2024	×	----	----
EP025: Oxygen - Dissolved							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	08-Aug-2024	09-Aug-2024	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	08-Aug-2024	09-Aug-2024	×	----	----

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

JONATHAN COFFEY

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

NATALIE CHANDRA

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2426147**	Page	: 1 of 23
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 09-Aug-2024 15:35
Order number	: SCL220037.10	Date Analysis Commenced	: 09-Aug-2024
C-O-C number	: ----	Issue Date	: 15-Aug-2024 15:04
Sampler	: NC		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 9		
No. of samples analysed	: 9		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- 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.
- 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.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.43**	**6.60**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**17100**	**8280**	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**12000**	**4950**	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**2360**	**502**	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**68.6**	**80.8**	----	----	----
pH Redox	----	0.01	pH Unit	**7.05**	**6.30**	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**831**	**188**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**831**	**188**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**282**	**368**	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**5860**	**2600**	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**241**	**28**	----	----	----
Magnesium	7439-95-4	1	mg/L	**428**	**105**	----	----	----
Sodium	7440-23-5	1	mg/L	**2810**	**1590**	----	----	----
Potassium	7440-09-7	1	mg/L	**58**	**5**	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.05**	<0.01	----	----	<0.01
Arsenic	7440-38-2	0.001	mg/L	**0.002**	**0.002**	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	<0.0001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
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
Nickel	7440-02-0	0.001	mg/L	**0.002**	**0.001**	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	<0.005
Manganese	7439-96-5	0.001	mg/L	**0.483**	**0.454**	----	----	----
Iron	7439-89-6	0.05	mg/L	**2.32**	**10.2**	----	----	----
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	----	----	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.66**	<0.01	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<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	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**9.1**	**0.3**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**9.1**	**0.3**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**2.28**	**0.02**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**188**	**84.8**	----	----	----
ø Total Cations	----	0.01	meq/L	**171**	**79.3**	----	----	----
ø Ionic Balance	----	0.01	%	**4.69**	**3.31**	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**3.9**	**4.2**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<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	**80**	<50	----	----	<50
C15 - C28 Fraction	----	100	µg/L	**160**	<100	----	----	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	**240**	<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	**150**	<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	**150**	<100	----	----	<100
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	**150**	<100	----	----	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	**14**	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	**16**	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	**16**	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	**15**	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	**14**	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
^ Total Xylenes	----	2	µg/L	<2	<2	**29**	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	**75**	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	**20**	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	----	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**96.2**	**97.2**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	GALC-MW18	TS02	TB02	RS03
			Sampling date / time	08-Aug-2024 00:00	08-Aug-2024 00:00	01-Aug-2024 00:00	01-Aug-2024 00:00	08-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426147-001	ES2426147-002	ES2426147-003	ES2426147-004	ES2426147-005
				Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	118	116	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	112	108	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	106	93.0	----	----	----
Toluene-D8	2037-26-5	5	%	111	96.7	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	103	90.9	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	35.0	25.7	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	68.3	51.9	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	89.3	79.6	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	87.8	72.6	----	----	----
Anthracene-d10	1719-06-8	1.0	%	101	90.5	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	100	93.9	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	108	95.3	100	104	113
Toluene-D8	2037-26-5	2	%	111	96.6	101	103	115
4-Bromofluorobenzene	460-00-4	2	%	107	94.2	101	102	110
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	97.0	94.3	----	----	----
13C8-PFOA	----	0.02	%	101	100	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.55**	**7.41**	**7.51**	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**484**	**20000**	**13300**	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**321**	**13100**	**8080**	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**72**	**2680**	**1950**	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**203**	**185**	**39.5**	----	----
pH Redox	----	0.01	pH Unit	**6.19**	**6.75**	**6.85**	----	----
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	**68**	**1160**	**1210**	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**68**	**1160**	**1210**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**55**	**346**	**241**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**45**	**6500**	**4240**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**9**	**222**	**183**	----	----
Magnesium	7439-95-4	1	mg/L	**12**	**515**	**363**	----	----
Sodium	7440-23-5	1	mg/L	**73**	**3550**	**1890**	----	----
Potassium	7440-09-7	1	mg/L	**4**	**64**	**44**	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.05**	**0.18**	<0.01	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	**0.058**	**0.002**	**0.004**	<0.001	----
Nickel	7440-02-0	0.001	mg/L	**0.002**	**0.001**	**0.002**	<0.001	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	**0.014**	<0.005	<0.005	<0.005	----
Manganese	7439-96-5	0.001	mg/L	**0.083**	**0.098**	**0.173**	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	**0.07**	**2.26**	----	----
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	----	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	**2.74**	**0.85**	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.12**	**0.07**	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**10.1**	**0.49**	**0.08**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**10.2**	**0.56**	**0.08**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.4**	**5.1**	**1.9**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**11.6**	**5.7**	**2.0**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.02**	**0.47**	**0.04**	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.02**	**0.01**	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**4.50**	----	----	----	----
ø Total Anions	----	0.01	meq/L	----	**214**	**149**	----	----
ø Total Cations	----	0.01	meq/L	**4.71**	**210**	**122**	----	----
ø Ionic Balance	----	0.01	%	**2.29**	----	----	----	----
ø Ionic Balance	----	0.01	%	----	**1.00**	**9.76**	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**6.2**	**6.4**	**5.0**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----
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	**270**	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	**260**	<50	<50	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	**530**	<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	**500**	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	**100**	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	**600**	<100	<100	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP080: BTEXN - Continued								
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	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	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	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.03**	<0.01	<0.01	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.03**	<0.01	<0.01	----	----
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.04**	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.07**	<0.01	<0.01	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH004_S	SMW_WTP_BH03A_W	SMW_WTP_BH02_W	RS04	----
			Sampling date / time	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	09-Aug-2024 00:00	----
Compound	*CAS Number*	*LOR*	*Unit*	ES2426147-006	ES2426147-007	ES2426147-008	ES2426147-009	--------
				Result	Result	Result	Result	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**106**	**98.6**	**122**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**126**	**132**	**138**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**120**	**125**	**136**	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**103**	**118**	**115**	----	----
Toluene-D8	2037-26-5	5	%	**105**	**119**	**116**	----	----
4-Bromofluorobenzene	460-00-4	5	%	**102**	**110**	**110**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**31.5**	**36.6**	**38.5**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**66.0**	**69.3**	**74.7**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**84.1**	**99.7**	**103**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**83.1**	**91.4**	**93.1**	----	----
Anthracene-d10	1719-06-8	1.0	%	**46.8**	**109**	**87.6**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**107**	**110**	**98.2**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**106**	**120**	**118**	**104**	----
Toluene-D8	2037-26-5	2	%	**105**	**119**	**116**	**103**	----
4-Bromofluorobenzene	460-00-4	2	%	**103**	**112**	**110**	**99.3**	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**92.7**	**89.7**	**88.8**	----	----
13C8-PFOA	----	0.02	%	**98.8**	**101**	**98.5**	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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

QUALITY CONTROL REPORT

Work Order	: **ES2426147**	Page	: 1 of 21
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 09-Aug-2024
Order number	: SCL220037.10	Date Analysis Commenced	: 09-Aug-2024
C-O-C number	: ----	Issue Date	: 15-Aug-2024
Sampler	: NC		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 9		
No. of samples analysed	: 9		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **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: 5982177)									
ES2425726-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.64	7.88	3.1	0% - 20%
ES2426147-008	SMW_WTP_BH02_W	EA005-P: pH Value	----	0.01	pH Unit	7.51	7.54	0.4	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5982176)									
ES2425706-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	53600	53000	1.0	0% - 20%
ES2425711-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	51900	52000	0.3	0% - 20%
ES2425921-014	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	<1	0.0	No Limit
ES2425726-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	55000	54800	0.5	0% - 20%
ES2425921-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2650	2680	1.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5986569)									
EN2408621-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	4030	3990	1.1	0% - 20%
EN2408632-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	674	692	2.6	0% - 20%
ES2425950-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	8410	8440	0.3	0% - 20%
ES2426006-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	18600	18500	0.6	0% - 20%
EA075: Redox Potential (QC Lot: 5980600)									
ES2426147-006	SMW_BH004_S	EA075: Redox Potential	----	0.1	mV	203	205	1.1	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	6.19	6.20	0.2	0% - 20%
EA075: Redox Potential (QC Lot: 5983230)									
EN2408447-001	Anonymous	EA075: Redox Potential	----	0.1	mV	443	450	1.7	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	3.47	3.45	0.6	0% - 20%
ES2426006-010	Anonymous	EA075: Redox Potential	----	0.1	mV	92.3	110	17.4	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EA075: Redox Potential (QC Lot: 5983230) - continued									
ES2426006-010	Anonymous	EA075: pH Redox	----	0.01	pH Unit	5.28	5.31	0.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5982178)									
ES2425921-014	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	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit
ES2425921-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	524	523	0.0	0% - 20%
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	71	75	5.7	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	595	598	0.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5982179)									
ES2426147-008	SMW_WTP_BH02_W	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	1210	1180	2.8	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1210	1180	2.8	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5980778)									
ES2426098-009	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	4	0.0	No Limit
ES2426098-024	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5980781)									
EW2403697-001	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: 5980777)									
ES2426098-009	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	51	51	0.0	0% - 20%
ES2426098-024	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1	<1	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5980780)									
EW2403697-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5	5	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5984194)									
ES2425911-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	12	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	8	8	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	298	294	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	155	156	0.0	0% - 20%
ES2426006-010	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	66	66	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	419	416	0.7	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3170	3150	0.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5984201)									
EN2408191-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	14	14	0.0	0% - 50%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5984201) - continued									
EN2408191-001	Anonymous	ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	23	24	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
ES2426053-007	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	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	3	3	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5984206)									
EW2403693-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	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	10	10	0.0	0% - 50%
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	ED093F: Calcium	7440-70-2	1	mg/L	222	220	0.6	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	515	504	2.3	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3550	3500	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	64	64	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984196)									
ES2426006-013	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	0.003	0.003	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	0.005	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.03	1.04	1.1	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.008	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.04	0.06	35.1	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	8.68	8.81	1.5	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984203)									
ES2425794-003	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: Manganese	7439-96-5	0.001	mg/L	0.007	0.007	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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.34	0.33	0.0	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984203) - continued									
ES2425794-003	Anonymous	EG020A-F: Iron	7439-89-6	0.05	mg/L	0.37	0.37	0.0	No Limit
ES2426053-007	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: Manganese	7439-96-5	0.001	mg/L	0.008	0.007	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	0.007	0.006	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5984207)									
ES2426147-009	RS04	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: Manganese	7439-96-5	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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5984197)									
ES2426006-013	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5984202)									
ES2425794-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2426053-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5984205)									
ES2426147-007	SMW_WTP_BH03A_W	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5983218)									
EN2408666-002	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2426006-012	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5986800)									
EN2408632-010	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.84	0.84	0.0	0% - 20%
ES2426006-012	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5980776)									
ES2426098-009	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5980776) - continued									
ES2426098-024	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: 5986801)									
EN2408632-010	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (0.05)*	mg/L	0.64	0.68	6.2	0% - 50%
ES2426006-012	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.05	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5986802)									
ES2426180-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	7.90	7.63	3.5	0% - 20%
ES2426182-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.05	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5986797)									
EN2408632-010	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.7	1.6	0.0	0% - 50%
ES2426006-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	5.6	6.1	8.5	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5986799)									
ES2426147-007	SMW_WTP_BH03A_W	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	5.1	5.0	0.0	No Limit
ES2426180-009	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.4	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5986796)									
EN2408632-010	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.53	0.54	2.2	0% - 20%
ES2426006-004	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	<0.10	<0.10	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5986798)									
ES2426147-007	SMW_WTP_BH03A_W	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	0.47	0.50	7.6	No Limit
ES2426180-009	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.08	22.9	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5980779)									
ES2426098-024	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5981784) - continued									
ES2426147-007	SMW_WTP_BH03A_W	EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5981784) - continued									
ES2426147-001	GALC-MW16_W	EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5981784) - continued									
ES2426147-007	SMW_WTP_BH03A_W	EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5981784)									
ES2426147-001	GALC-MW16_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5981785)									
ES2426147-001	GALC-MW16_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5981785)									
ES2426147-001	GALC-MW16_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2426147-007	SMW_WTP_BH03A_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5981785)									
ES2426147-001	GALC-MW16_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2426147-007	SMW_WTP_BH03A_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5982177)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5982176)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	105	89.9	110
				<1	2100 µS/cm	103	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5986569)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.8	87.0	109
				<10	293 mg/L	109	75.2	126
				<10	2410 mg/L	101	83.0	124
EA075: Redox Potential (QCLot: 5980600)								
EA075: Redox Potential	----	----	mV	----	234 mV	101	96.0	106
				----	300 mV	100	97.0	105
				----	86 mV	102	97.0	115
EA075: Redox Potential (QCLot: 5983230)								
EA075: Redox Potential	----	----	mV	----	234 mV	99.7	96.0	106
				----	300 mV	98.5	97.0	105
				----	86 mV	101	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5982178)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	86.2	81.0	115
				----	50 mg/L	100	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 5982179)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	102	81.0	115
				----	50 mg/L	110	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980778)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	104	82.0	122
				<1	500 mg/L	96.2	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980781)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	82.0	122
				<1	500 mg/L	93.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5980777)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 5980777) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	103	80.9	127
				<1	1000 mg/L	107	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5980780)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	97.1	80.9	127
				<1	1000 mg/L	103	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5984194)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	97.7	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.2	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.0	85.0	113
ED093F: Dissolved Major Cations (QCLot: 5984201)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	108	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	107	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	85.0	113
ED093F: Dissolved Major Cations (QCLot: 5984206)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	108	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	108	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	103	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984196)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	81.7	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	86.4	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	86.6	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	87.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	82.4	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.4	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.5	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	88.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	84.5	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	86.0	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984203)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	90.3	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	86.9	85.0	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984203) - continued								
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	87.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	86.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	85.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	83.9	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	85.6	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	85.8	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.6	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	84.6	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984207)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	89.6	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	87.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	85.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	87.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	88.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	84.2	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	86.2	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	87.5	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	87.3	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	85.7	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5984197)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.5	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5984202)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.2	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5984205)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.6	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 5983218)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	94.1	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5986800)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	104	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980776)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.1	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986801)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	107	91.0	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986802)								

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*	*Concentration*	*LCS*	*Low*	*High*
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986802) - continued								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	106	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5986797)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	94.9	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	107	70.0	123
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5986799)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	96.2	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	103	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5986796)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	89.8	71.3	126
				<0.01	0.442 mg/L	90.7	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5986798)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	91.1	71.3	126
				<0.01	0.442 mg/L	87.2	71.3	126
				<0.01	1 mg/L	101	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5980779)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	99.1	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5981773)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	95.2	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5981770)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	91.5	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	85.5	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	80.2	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	79.1	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	79.2	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	78.4	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	81.6	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	76.5	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	82.4	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	79.7	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	83.1	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	83.7	65.2	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5981770) - continued								
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	80.5	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	103	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	78.0	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	78.7	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	100	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	89.4	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	104	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	91.7	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	106	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5981770)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	78.5	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	83.6	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.6	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	86.4	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	82.6	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	82.4	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	83.4	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	81.6	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	81.4	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	80.4	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	83.3	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	81.7	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	81.0	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	82.0	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	78.8	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	78.4	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	77.2	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	91.3	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	75.4	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5981784)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	99.9	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	99.8	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	100	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	74.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5981784) - continued								
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	102	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	103	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	102	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	106	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5981784)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.8	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	96.3	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	95.8	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	97.9	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5981784)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	85.9	72.8	127
EP074D: Fumigants (QCLot: 5981784)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	100	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	95.2	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	96.6	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	98.4	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	93.4	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5981784)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	99.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	81.4	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	82.0	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	98.8	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	89.2	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	84.8	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	84.6	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	84.3	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	85.5	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	92.6	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	93.0	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	94.0	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	88.4	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.8	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	94.0	73.0	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5981784) - continued								
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	90.8	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	92.7	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	98.7	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	98.6	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	90.8	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	101	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	109	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	107	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	101	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	102	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	105	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	99.5	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	105	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5981784)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	96.5	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	99.4	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	103	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	103	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	103	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	103	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	108	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	105	67.0	123
EP074G: Trihalomethanes (QCLot: 5981784)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	98.5	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	96.0	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	98.6	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	95.7	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5981771)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	75.4	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	73.9	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	71.9	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	77.3	62.6	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5981771) - continued								
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	76.1	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	76.6	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	77.5	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	79.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	79.3	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	77.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	86.3	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	77.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.0	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	75.2	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	75.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5981772)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	73.8	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	83.1	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	87.8	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5981785)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	97.6	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5981772)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	86.8	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	75.4	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	63.2	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5981785)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	101	75.0	127
EP080: BTEXN (QCLot: 5981785)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.9	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	83.1	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	82.8	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	83.6	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	86.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	100	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5981974)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	94.7	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	93.6	68.0	131

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	LCS Spike Concentration	LCS Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5981974) - continued								
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	95.4	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5981974)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.3	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.3	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5981974)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	92.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	118	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	85.5	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980778)							
ES2426098-009	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	106	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5980781)							
EW2403697-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	107	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5980777)							
ES2426098-009	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	95.1	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5980780)							
EW2403697-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	96.0	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984196)							
ES2426006-012	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	91.0	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	85.0	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	83.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	86.0	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	77.8	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	83.4	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	86.4	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984196) - continued							
ES2426006-012	Anonymous	EG020A-F: Zinc	7440-66-6	1 mg/L	89.6	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984203)							
ES2425794-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	82.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	81.8	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	87.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	84.7	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	86.8	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	85.7	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	86.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	84.5	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5984207)							
EW2403692-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	84.8	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	82.3	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	86.7	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	85.9	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	86.3	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	86.8	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	88.6	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	87.9	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5984197)							
ES2426006-011	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	92.9	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5984202)							
ES2425794-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	81.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5984205)							
ES2426147-005	RS03	EG035F: Mercury	7439-97-6	0.01 mg/L	74.4	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5983218)							
EN2408666-002	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	95.4	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5986800)							
EN2408632-010	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	88.5	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5980776)							
ES2426098-009	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	99.8	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986801)							
EN2408632-010	Anonymous	EK059G: Nitrite + Nitrate as N	----	2.5 mg/L	98.5	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5986802)							
ES2426180-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5986797)							
EN2408632-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	104	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5986799)							
ES2426147-008	SMW_WTP_BH02_W	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	80.1	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5986796)							
EN2408632-011	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	103	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5986798)							
ES2426147-008	SMW_WTP_BH02_W	EK067G: Total Phosphorus as P	----	1 mg/L	102	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5980779)							
ES2426098-024	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	101	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5981784)							
ES2426147-001	GALC-MW16_W	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	102	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	83.4	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5981784)							
ES2426147-001	GALC-MW16_W	EP074: Chlorobenzene	108-90-7	25 µg/L	88.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5981785)							
ES2426147-001	GALC-MW16_W	EP080: C6 - C9 Fraction	----	325 µg/L	108	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5981785)							
ES2426147-001	GALC-MW16_W	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	111	70.0	130
EP080: BTEXN (QCLot: 5981785)							
ES2426147-001	GALC-MW16_W	EP080: Benzene	71-43-2	25 µg/L	87.1	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	86.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	90.5	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	89.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.0	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	101	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2426147**	Page	: 1 of 15
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 09-Aug-2024
Site	: ----	Issue Date	: 15-Aug-2024
Sampler	: NC	No. of samples received	: 9
Order number	: SCL220037.10	No. of samples analysed	: 9

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **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							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2426180--005	Anonymous	**Nitrite + Nitrate as N**	----	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 GALC-MW16_W,	GALC-MW18	----	----	----	12-Aug-2024	08-Aug-2024	**4**
Clear Plastic Bottle - Natural SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	----	----	----	12-Aug-2024	09-Aug-2024	**3**
EA075: Redox Potential							
Clear Plastic Bottle - Natural GALC-MW16_W,	GALC-MW18	----	----	----	12-Aug-2024	08-Aug-2024	**4**
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural GALC-MW18		----	----	----	12-Aug-2024	10-Aug-2024	**2**
Clear Plastic Bottle - Natural SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	----	----	----	12-Aug-2024	11-Aug-2024	**1**
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural GALC-MW16_W,	GALC-MW18	----	----	----	12-Aug-2024	10-Aug-2024	**2**
Clear Plastic Bottle - Natural SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	----	----	----	12-Aug-2024	11-Aug-2024	**1**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural GALC-MW16_W,	GALC-MW18	----	----	----	10-Aug-2024	08-Aug-2024	**2**
Clear Plastic Bottle - Natural SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	----	----	----	10-Aug-2024	09-Aug-2024	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

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

Method / *Container / Client Sample ID(s)*		*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**12-Aug-2024**	08-Aug-2024	✘
Clear Plastic Bottle - Natural (EA005-P) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**12-Aug-2024**	09-Aug-2024	✘
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**12-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Natural (EA010-P) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**12-Aug-2024**	06-Sep-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**13-Aug-2024**	15-Aug-2024	✓
Clear Plastic Bottle - Natural (EA015H) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**13-Aug-2024**	16-Aug-2024	✓

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / *Client Sample ID(s)*		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**13-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**13-Aug-2024**	06-Sep-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**12-Aug-2024**	08-Aug-2024	✗
Clear Plastic Bottle - Natural (EA075) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**09-Aug-2024**	09-Aug-2024	✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**12-Aug-2024**	22-Aug-2024	✓
Clear Plastic Bottle - Natural (ED037-P) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**12-Aug-2024**	23-Aug-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**12-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Natural (ED041G) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**12-Aug-2024**	06-Sep-2024	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**10-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Natural (ED045G) SMW_WTP_BH03A_W,	SMW_WTP_BH02_W	**09-Aug-2024**	**----**	----	----	**10-Aug-2024**	06-Sep-2024	✓
Clear Plastic Bottle - Natural (ED045G) SMW_BH004_S		**09-Aug-2024**	**----**	----	----	**12-Aug-2024**	06-Sep-2024	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**----**	----	----	**13-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**----**	----	----	**13-Aug-2024**	06-Sep-2024	✓

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS								
Amber Glass Bottle - Unpreserved (EG020A-F) RS03		08-Aug-2024	----	----	----	13-Aug-2024	04-Feb-2025	✓
Amber Glass Bottle - Unpreserved (EG020A-F) RS04		09-Aug-2024	----	----	----	13-Aug-2024	05-Feb-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) GALC-MW16_W,	GALC-MW18	08-Aug-2024	----	----	----	13-Aug-2024	04-Feb-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	09-Aug-2024	----	----	----	13-Aug-2024	05-Feb-2025	✓
EG035F: Dissolved Mercury by FIMS								
Amber Glass Bottle - Unpreserved (EG035F) RS03		08-Aug-2024	----	----	----	14-Aug-2024	22-Aug-2024	✓
Amber Glass Bottle - Unpreserved (EG035F) RS04		09-Aug-2024	----	----	----	14-Aug-2024	23-Aug-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) GALC-MW16_W,	GALC-MW18	08-Aug-2024	----	----	----	14-Aug-2024	05-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW_WTP_BH03A_W		09-Aug-2024	----	----	----	14-Aug-2024	06-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW_BH004_S,	SMW_WTP_BH02_W	09-Aug-2024	----	----	----	15-Aug-2024	06-Sep-2024	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F) GALC-MW16_W,	GALC-MW18	08-Aug-2024	----	----	----	12-Aug-2024	05-Sep-2024	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	09-Aug-2024	----	----	----	12-Aug-2024	06-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) GALC-MW16_W,	GALC-MW18	08-Aug-2024	----	----	----	14-Aug-2024	05-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	09-Aug-2024	----	----	----	14-Aug-2024	06-Sep-2024	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) GALC-MW16_W		08-Aug-2024	----	----	----	10-Aug-2024	10-Aug-2024	✓
Clear Plastic Bottle - Natural (EK057G) GALC-MW18		08-Aug-2024	----	----	----	12-Aug-2024	10-Aug-2024	✗
Clear Plastic Bottle - Natural (EK057G) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	09-Aug-2024	----	----	----	12-Aug-2024	11-Aug-2024	✗

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation* *Date extracted*	*Due for extraction*	*Evaluation*	*Analysis* *Date analysed*	*Due for analysis*	*Evaluation*
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**----**	----	----	**14-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**----**	----	----	**14-Aug-2024**	06-Sep-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**14-Aug-2024**	05-Sep-2024	✓	**14-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**14-Aug-2024**	06-Sep-2024	✓	**14-Aug-2024**	06-Sep-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**14-Aug-2024**	05-Sep-2024	✓	**14-Aug-2024**	05-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**14-Aug-2024**	06-Sep-2024	✓	**14-Aug-2024**	06-Sep-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**----**	----	----	**12-Aug-2024**	10-Aug-2024	✗
Clear Plastic Bottle - Natural (EK071G) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**----**	----	----	**12-Aug-2024**	11-Aug-2024	✗
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**----**	----	----	**10-Aug-2024**	08-Aug-2024	✗
Clear Plastic Bottle - Natural (EP025) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**----**	----	----	**10-Aug-2024**	09-Aug-2024	✗
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**13-Aug-2024**	21-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP066) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**12-Aug-2024**	16-Aug-2024	✓	**13-Aug-2024**	21-Sep-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**12-Aug-2024**	16-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	16-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method **Container** / Client Sample ID(s)	**Sample Date**	Extraction / Preparation **Date extracted**	 Due for extraction	 Evaluation	Analysis **Date analysed**	 Due for analysis	 Evaluation
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) GALC-MW16_W, GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**13-Aug-2024**	21-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W	**09-Aug-2024**	**12-Aug-2024**	16-Aug-2024	✓	**13-Aug-2024**	21-Sep-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) GALC-MW16_W, GALC-MW18, RS03	**08-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W, RS04	**09-Aug-2024**	**12-Aug-2024**	16-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB02	**01-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**12-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) GALC-MW16_W, GALC-MW18, RS03	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W, RS04	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) GALC-MW16_W, GALC-MW18, RS03	**08-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W, RS04	**09-Aug-2024**	**12-Aug-2024**	16-Aug-2024	✓	**14-Aug-2024**	21-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB02	**01-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**12-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) GALC-MW16_W, GALC-MW18, RS03	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_S, SMW_WTP_BH03A_W, SMW_WTP_BH02_W, RS04	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) TS02,	TB02	**01-Aug-2024**	**12-Aug-2024**	15-Aug-2024	✓	**12-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) GALC-MW16_W, RS03	GALC-MW18,	**08-Aug-2024**	**12-Aug-2024**	22-Aug-2024	✓	**12-Aug-2024**	22-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_S, SMW_WTP_BH02_W,	SMW_WTP_BH03A_W, RS04	**09-Aug-2024**	**12-Aug-2024**	23-Aug-2024	✓	**13-Aug-2024**	23-Aug-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	04-Feb-2025	✓	**13-Aug-2024**	04-Feb-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	05-Feb-2025	✓	**13-Aug-2024**	05-Feb-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	04-Feb-2025	✓	**13-Aug-2024**	04-Feb-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	05-Feb-2025	✓	**13-Aug-2024**	05-Feb-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	04-Feb-2025	✓	**13-Aug-2024**	04-Feb-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	05-Feb-2025	✓	**13-Aug-2024**	05-Feb-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) GALC-MW16_W,	GALC-MW18	**08-Aug-2024**	**12-Aug-2024**	04-Feb-2025	✓	**13-Aug-2024**	04-Feb-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH02_W	SMW_WTP_BH03A_W,	**09-Aug-2024**	**12-Aug-2024**	05-Feb-2025	✓	**13-Aug-2024**	05-Feb-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	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	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	5	48	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	6	52	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	25	**16.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	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
Conductivity by Auto Titrator	EA010-P	4	48	**8.33**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	37	**8.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	36	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	3	52	**5.77**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	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*	
Laboratory Control Samples (LCS) - Continued							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	6	22	**27.27**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	6	40	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	6	40	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	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
Conductivity by Auto Titrator	EA010-P	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	37	**8.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	36	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	3	52	**5.77**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	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
Dissolved Mercury by FIMS	EG035F	3	37	**8.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	36	**8.33**	**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							
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate forms highly-coloured ferric thiocynate 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 (SnCl2)(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 SnCl2 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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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 1030F. This method is compliant with NEPM Schedule B(3)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	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. This method is compliant with 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 LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

... / ... Split WU
... / Analysis: Envirolab - QC04
...ganised By / Date:
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...note / Courier:
... No:
A... By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2426449

Telephone : + 61-2-8784 8555

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page 1 of 2

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page of		Sample Disposal After:	
Number of Eskies:			

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip **TRH C6-C10/BTEXN**	Rinsate **TRH C6-C40**	**8 metals**
1	PM-BH14_W	12/8	W											✓	✓	✓	✓	✓	✓	✓				
2	PM-BH15_W	12/8												✓	✓	✓	✓	✓	✓	✓				
3	QC03														✓	✓	✓			✓				
~~3~~	*QC04													*Send to EnviroLab										
4	RS05																						✓	✓
5	TB03	1/8																				✓		
6	TS03	1/8																				✓		
	~~SMW_ENV226~~																							
7	SMW_ENV226_S	12/8												✓	✓	✓	✓	✓	✓	✓				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE [signature] DATE 13/8	Received By: NAME [handwritten name] SIGNATURE [signature] DATE 13/8/24 1408	Custody Seals Intact	Y N
		Samples Received Chilled	Y N
		Method of Shipment	

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

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Chain of Custody Record

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~ Envirolab
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: **TRH C6-C10/BTEXN**	Rinsate: **TRH C6-C40**	Rinsate: **8 metals**
	QC04	12/8	W												/	/	/			/				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:		Received By:		Custody Seals Intact	Y N
NAME	Natalie Chandra	NAME		Samples Received Chilled	Y N
SIGNATURE		SIGNATURE		Method of Shipment	
DATE	13/8	DATE			

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

Rec: 13/8/24 1408

Relinq: 13/8/24 1408

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2426449**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com .au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 3
Order number	: ----	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: NATALIE CHANDRA		

Dates

Date Samples Received	: 13-Aug-2024 14:08	Issue Date	: 14-Aug-2024
Client Requested Due Date	: 19-Aug-2024	Scheduled Reporting Date	: **19-Aug-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 7.5'C, 9.5'C, 7.8'C - Ice present
Receipt Detail	: Ice melted	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- 14/08/2024: This is an updated SRN which indicates the amended sampling date for sample 007.
- **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).**
- **Sample 'QC04' forwarded to Envirolab**
- 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 - EA075 Redox Potential	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EP025 Dissolved Oxygen (DO)	WATER - W-02 8 Metals	WATER - W-10 TRH/BTEX/VOC/PAH	WATER - W-13 OC/OP/PCB
ES2426449-001	12-Aug-2024 00:00	PM_BH14_W	✓	✓	✓	✓	✓	✓	✓
ES2426449-002	12-Aug-2024 00:00	PM_BH15_W	✓	✓	✓	✓	✓	✓	✓
ES2426449-003	12-Aug-2024 00:00	QC03		✓	✓		✓	✓	✓
ES2426449-007	12-Aug-2024 00:00	SMW_ENV226_S	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +
ES2426449-001	12-Aug-2024 00:00	PM_BH14_W	✓	✓	✓	✓	✓	✓	✓
ES2426449-002	12-Aug-2024 00:00	PM_BH15_W	✓	✓	✓	✓	✓	✓	✓
ES2426449-003	12-Aug-2024 00:00	QC03				✓	✓		
ES2426449-007	12-Aug-2024 00:00	SMW_ENV226_S	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - W-05T TRH/BTEXN/8 Metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2426449-004	12-Aug-2024 00:00	RS05		✓	
ES2426449-005	01-Aug-2024 00:00	TB03			✓
ES2426449-006	01-Aug-2024 00:00	TS03	✓		

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							
PM_BH14_W	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
PM_BH15_W	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
SMW_ENV226_S	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
EA075: Redox Potential							
PM_BH14_W	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
PM_BH15_W	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
SMW_ENV226_S	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
EP025: Oxygen - Dissolved							
PM_BH14_W	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
PM_BH15_W	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----
SMW_ENV226_S	Clear Plastic Bottle - Natural	----	12-Aug-2024	13-Aug-2024	×	----	----

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

JONATHAN PICKERDEN

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

NATALIE CHANDRA

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2426449**	Page	: 1 of 24
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 13-Aug-2024 14:08
Order number	: ----	Date Analysis Commenced	: 13-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 12:08
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- TDS by method EA-015 sample 7 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EN055: Ionic Balance out of acceptable limits for sample ES2426449-#002 due to analytes not quantified in this report.
- 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.
- 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.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.24**	**6.61**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**527**	**959**	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**342**	**626**	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**30**	**78**	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**198**	**126**	----	----	----
pH Redox	----	0.01	pH Unit	**6.74**	**5.96**	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**91**	**42**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**91**	**42**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**79**	**203**	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**46**	**166**	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**4**	**13**	----	----	----
Magnesium	7439-95-4	1	mg/L	**5**	**11**	----	----	----
Sodium	7440-23-5	1	mg/L	**106**	**106**	----	----	----
Potassium	7440-09-7	1	mg/L	<1	**6**	----	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	**0.074**	<0.001	**0.002**	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	**0.003**	**0.003**	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	**0.001**	----	----
Zinc	7440-66-6	0.005	mg/L	**0.009**	**0.005**	**0.010**	----	----
Manganese	7439-96-5	0.001	mg/L	**0.002**	**0.020**	**0.020**	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	**0.97**	**1.16**	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<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	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	**0.04**	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser - Continued								
Nitrate as N	14797-55-8	0.01	mg/L	**3.10**	**0.11**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**3.10**	**0.11**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.7**	**0.8**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**3.8**	**0.9**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.01**	**0.40**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**4.76**	**9.75**	----	----	----
ø Total Cations	----	0.01	meq/L	**5.22**	**6.32**	----	----	----
ø Ionic Balance	----	0.01	%	**4.62**	**21.3**	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**8.6**	**7.6**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	**2.4**	**1.8**	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	**2.4**	**1.8**	----	----
^ 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	<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	<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	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >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	<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								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.07**	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.17**	**0.02**	**0.02**	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.22**	**0.03**	**0.03**	----	----
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	**0.14**	**0.13**	**0.14**	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.14**	**0.09**	**0.12**	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	**0.07**	**0.03**	**0.03**	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.11**	**0.07**	**0.07**	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.39**	**0.05**	**0.05**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.92**	**0.37**	**0.41**	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**71.0**	**73.8**	**71.7**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**76.4**	**76.9**	**75.3**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**72.7**	**60.8**	**70.4**	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**100**	**101**	**103**	----	----
Toluene-D8	2037-26-5	5	%	**104**	**105**	**104**	----	----
4-Bromofluorobenzene	460-00-4	5	%	**104**	**105**	**105**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**21.0**	**21.0**	**21.7**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**46.3**	**46.3**	**47.9**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**57.3**	**63.1**	**62.0**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**58.5**	**56.4**	**60.0**	----	----
Anthracene-d10	1719-06-8	1.0	%	**68.3**	**70.3**	**68.6**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**70.2**	**72.0**	**69.7**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**95.2**	**96.6**	**98.0**	**107**	**99.4**
Toluene-D8	2037-26-5	2	%	**98.9**	**99.4**	**98.4**	**119**	**108**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	PM_BH14_W	PM_BH15_W	QC03	RS05	TB03
			Sampling date / time	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	12-Aug-2024 00:00	01-Aug-2024 00:00
				ES2426449-001	ES2426449-002	ES2426449-003	ES2426449-004	ES2426449-005
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	2	%	104	104	104	120	113
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	98.7	109	110	----	----
13C8-PFOA	----	0.02	%	102	97.6	102	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	7.33	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	7620	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	5610	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	2120	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	-15.3	----	----	----
pH Redox	----	0.01	pH Unit	----	6.52	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	365	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	365	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	1770	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	1430	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	461	----	----	----
Magnesium	7439-95-4	1	mg/L	----	236	----	----	----
Sodium	7440-23-5	1	mg/L	----	956	----	----	----
Potassium	7440-09-7	1	mg/L	----	81	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	0.002	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	0.002	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	**0.008**	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	**0.011**	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	**1.85**	----	----	----
Iron	7439-89-6	0.05	mg/L	----	**110**	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----
EG049F: Dissolved Trivalent Chromium								
Trivalent Chromium	16065-83-1	0.01	mg/L	----	<0.01	----	----	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	<0.01	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	**7.78**	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	**0.02**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	**0.02**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	**13.3**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	----	**13.3**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	**1.24**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	<0.01	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	**84.5**	----	----	----
ø Total Cations	----	0.01	meq/L	----	**86.1**	----	----	----
ø Ionic Balance	----	0.01	%	----	**0.94**	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	**6.7**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	----	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L	----	<0.5	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	----	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	----	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	----	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	----	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	----	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	----	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L	----	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L	----	<2.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
Endrin ketone	53494-70-5	0.5	µg/L	----	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	----	<2.0	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	----	<0.5	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	<0.5	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	----	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	----	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L	----	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L	----	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	----	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L	----	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L	----	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L	----	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	----	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	----	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L	----	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	----	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Styrene	100-42-5	5	µg/L	----	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	----	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	----	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	----	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	----	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	----	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	----	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	----	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	<5	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	----	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	----	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	----	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	----	<50	----	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloroethane	75-00-3	50	µg/L	----	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	----	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	----	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	----	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	----	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	----	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	----	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	----	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	----	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	----	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	----	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	----	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	5	µg/L	----	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	----	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	----	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	----	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	----	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	----	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	----	<5	----	----	----
Bromoform	75-25-2	5	µg/L	----	<5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	----	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	----	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	----	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	----	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	----	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	**17**	<1	----	----	----
Toluene	108-88-3	2	µg/L	**18**	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	**16**	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	**16**	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	**18**	<2	----	----	----
^ Total Xylenes	----	2	µg/L	**34**	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	**85**	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			*Sample ID*	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	**20**	<5	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	----	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	----	**0.05**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	----	<0.01	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	----	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	----	**0.03**	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	**0.01**	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	----	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	----	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	----	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	----	<0.05	----	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	**0.05**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	**0.09**	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	**73.1**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	**87.0**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS03	SMW_ENV226_S	----	----	----
			Sampling date / time	01-Aug-2024 00:00	12-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2426449-006	ES2426449-007	--------	--------	--------
				Result	Result	----	----	----
EP068T: Organophosphorus Pesticide Surrogate - Continued								
DEF	78-48-8	0.5	%	----	82.9	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	108	----	----	----
Toluene-D8	2037-26-5	5	%	----	115	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	----	113	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	24.6	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	49.4	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	----	66.7	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	60.7	----	----	----
Anthracene-d10	1719-06-8	1.0	%	----	73.5	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	77.3	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	96.6	103	----	----	----
Toluene-D8	2037-26-5	2	%	103	110	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	108	113	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	99.8	----	----	----
13C8-PFOA	----	0.02	%	----	80.2	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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

QUALITY CONTROL REPORT

Work Order	: **ES2426449**	Page	: 1 of 21
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 13-Aug-2024
Order number	: ----	Date Analysis Commenced	: 13-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **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: 5988307)									
ES2426449-007	SMW_ENV226_S	EA005-P: pH Value	----	0.01	pH Unit	7.33	7.31	0.3	0% - 20%
ES2426382-007	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.83	8.00	2.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5988303)									
ES2426112-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	12600	12700	0.9	0% - 20%
ES2426049-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	339	341	0.6	0% - 20%
ES2426449-007	SMW_ENV226_S	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	7620	7800	2.4	0% - 20%
ES2426270-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	5180	5220	0.7	0% - 20%
ES2426382-007	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	712	710	0.3	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5986569)									
EN2408621-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	4030	3990	1.1	0% - 20%
EN2408632-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	674	692	2.6	0% - 20%
ES2425950-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	8410	8440	0.3	0% - 20%
ES2426006-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	18600	18500	0.6	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5992735)									
EN2408732-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1470	1470	0.3	0% - 20%
ES2426333-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	938	971	3.5	0% - 20%
ES2426592-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	304	298	2.2	0% - 20%
EW2403686-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1020	954	7.0	0% - 20%
EA075: Redox Potential (QC Lot: 5988247)									
ES2426449-001	PM_BH14_W	EA075: Redox Potential	----	0.1	mV	198	200	1.2	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EA075: Redox Potential (QC Lot: 5988247) - continued									
ES2426449-001	PM_BH14_W	EA075: pH Redox	----	0.01	pH Unit	6.74	6.71	0.4	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5988308)									
ES2426449-007	SMW_ENV226_S	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	365	367	0.4	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	365	367	0.4	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5986688)									
ES2426270-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1 (10)*	mg/L	<10	<10	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5988359)									
ES2425894-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	309	302	2.4	0% - 20%
ES2426089-013	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	248	248	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5986687)									
ES2426270-005	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	756	740	2.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5988360)									
ES2425978-009	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5	5	0.0	No Limit
EW2403660-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	8	8	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5987008)									
ES2426436-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	101	100	1.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	37	37	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	8	8	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
ES2426212-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	71	71	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	23	23	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	38	38	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5987009)									
ES2426449-001	PM_BH14_W	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	0.074	0.080	7.9	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	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	0.009	<0.005	53.3	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2426436-002	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

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 (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5987009) - continued									
ES2426436-002	Anonymous	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: Manganese	7439-96-5	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
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5989327)									
ES2426382-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2426436-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5987004)									
EN2408742-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2426212-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5987010)									
ES2426449-007	SMW_ENV226_S	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5989403)									
ES2426449-004	RS05	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
WN2408739-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5992812)									
EN2408732-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2426449-003	QC03	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5989295)									
ES2426382-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (0.10)*	mg/L	<0.10	<0.10	0.0	No Limit
ES2426449-001	PM_BH14_W	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5986686)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5986686) - continued									
EW2403758-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.01	0.0	No Limit
ES2426270-005	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.03	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5988357)									
ES2426255-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2425812-001	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: 5989296)									
ES2426382-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.51	0.52	0.0	0% - 20%
ES2426449-001	PM_BH14_W	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.10	3.12	0.7	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5989291)									
ES2426449-002	PM_BH15_W	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	0.8	0.9	0.0	No Limit
ES2426436-006	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5989292)									
ES2426436-006	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.39	1.25	10.7	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5986682)									
EN2408732-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5988361)									
ES2426091-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.06	0.06	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074B: Oxygenated Compounds (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5987065) - continued									
CA2405080-001	Anonymous	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5987065) - continued									
ES2426449-001	PM_BH14_W	EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5987065)									
CA2405080-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2426449-001	PM_BH14_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5986510)									
EN2408732-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2426436-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5987066)									
ES2426449-001	PM_BH14_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5986510)									
EN2408732-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2426436-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5987066)									
ES2426449-001	PM_BH14_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5986510)									
EN2408732-001	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2426436-007	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP080: BTEXN (QC Lot: 5987066)									
ES2426449-001	PM_BH14_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5989659)									
ES2426640-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.65	0.60	8.6	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.10	0.11	0.0	No Limit
ES2426449-001	PM_BH14_W	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.17	0.17	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.22	0.24	8.6	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.07	0.06	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5989659)									
ES2426640-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.10	0.10	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5989659) - continued									
ES2426640-001	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.14	0.12	14.3	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.03	0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2426449-001	PM_BH14_W	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.11	0.11	0.0	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.14	0.15	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.14	0.14	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.07	0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5989659)									
ES2426640-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2426449-001	PM_BH14_W	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5988307)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.7	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5988303)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	106	89.9	110
				<1	2100 µS/cm	106	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5986569)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.8	87.0	109
				<10	293 mg/L	109	75.2	126
				<10	2410 mg/L	101	83.0	124
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5992735)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	94.5	87.0	109
				<10	293 mg/L	114	75.2	126
				<10	2410 mg/L	101	83.0	124
EA075: Redox Potential (QCLot: 5988247)								
EA075: Redox Potential	----	----	mV	----	234 mV	102	96.0	106
				----	300 mV	100	97.0	105
				----	86 mV	100	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5988308)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	106	81.0	115
				----	50 mg/L	111	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5986688)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.2	82.0	122
				<1	500 mg/L	88.5	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5988359)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	82.0	122
				<1	500 mg/L	95.6	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5986687)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	97.1	80.9	127
				<1	1000 mg/L	113	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5988360)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 5988360) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	90.5	80.9	127
				<1	1000 mg/L	99.6	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5987008)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	96.9	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	108	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	105	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: 5987009)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.8	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	88.8	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	89.6	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.4	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	90.4	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5989327)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.8	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.4	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.8	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.6	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.7	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.7	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.2	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5987004)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.0	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5987010)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.8	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5989403)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.3	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 5992812)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	104	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5989295)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5989295) - continued								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	96.4	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5986686)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	94.0	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5988357)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	97.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5989296)								
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: 5989291)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	95.6	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	112	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5989292)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	94.2	71.3	126
				<0.01	0.442 mg/L	91.8	71.3	126
				<0.01	1 mg/L	107	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5986682)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	99.1	85.0	117
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5988361)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	102	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5986904)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	89.3	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5986903)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	84.4	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	76.1	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	92.3	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.4	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	86.8	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	82.2	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	85.7	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	83.7	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	95.1	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	94.1	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	89.1	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	95.6	65.2	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5986903) - continued								
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	95.9	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	104	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	90.5	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	86.4	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	94.2	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	85.9	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	97.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	92.0	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	86.5	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5986903)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	98.6	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	78.9	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	23.8	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	92.7	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	93.8	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	87.9	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	84.9	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	98.2	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	86.5	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	89.7	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	82.5	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	87.9	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	97.5	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	88.9	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	99.5	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	89.6	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	83.9	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	93.8	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	97.4	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5987065)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	99.5	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	99.2	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	98.1	74.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5987065) - continued								
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	99.6	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	99.0	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.5	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.3	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	98.0	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5987065)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	99.3	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	91.7	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	101	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	98.8	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5987065)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	99.8	72.8	127
EP074D: Fumigants (QCLot: 5987065)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	97.9	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	99.3	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	99.9	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	100	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	97.6	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5987065)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	97.6	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	97.3	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	99.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	102	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	98.6	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	98.9	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	100	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	102	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	98.7	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	99.4	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	99.8	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	101	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	98.6	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	100	73.0	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5987065) - continued								
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	100	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.5	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	101	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	102	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	97.7	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	100	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	104	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	99.1	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	102	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	102	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	101	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	98.7	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	102	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5987065)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.4	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.9	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	99.4	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	98.6	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.2	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.3	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	97.3	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	97.6	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	103	67.0	123
EP074G: Trihalomethanes (QCLot: 5987065)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	99.8	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	97.2	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	104	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	104	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5986901)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.6	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	79.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	76.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	77.7	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	84.2	62.6	116

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5986901) - continued								
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	85.0	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	95.7	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	96.5	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	103	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	90.1	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	97.9	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	90.8	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	95.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	91.0	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	93.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	94.2	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5986510)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.6	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5986902)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	76.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	88.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	100	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5987066)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	76.3	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5986510)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	90.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5986902)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	81.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	93.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	65.9	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5987066)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	75.6	75.0	127
EP080: BTEXN (QCLot: 5986510)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.9	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	103	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	111	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	114	76.4	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080: BTEXN (QCLot: 5986510) - continued								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	120	75.5	124
EP080: BTEXN (QCLot: 5987066)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.3	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.0	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.0	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	97.6	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	91.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	98.4	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5989659)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	87.7	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	117	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5989659)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	116	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	107	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	117	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	117	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5989659)								
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	95.1	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	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	111	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5986688)							
ES2426270-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	116	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5988359)							

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: 5988359) - continued							
ES2425894-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5986687)							
ES2426270-005	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	78.6	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5988360)							
ES2425978-009	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	92.0	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5987009)							
ES2426382-005	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	99.0	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	95.8	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	110	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	111	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	108	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	110	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	98.0	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5989327)							
ES2426382-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.4	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.9	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	90.5	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	91.7	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	86.6	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	89.6	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	90.7	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5987004)							
EN2408741-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	98.5	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5987010)							
ES2426449-003	QC03	EG035F: Mercury	7439-97-6	0.01 mg/L	94.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5989403)							
EP2410952-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	90.9	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5992812)							
EN2408732-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.1 mg/L	113	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5989295)							
ES2426382-005	Anonymous	EK055G: Ammonia as N	7664-41-7	10 mg/L	112	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5986686)							
ES2426270-005	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	97.7	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5988357)							
ES2425812-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	105	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5989296)							
ES2426382-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	83.5	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5989291)							
ES2426436-007	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	115	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5989292)							
ES2426436-007	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	102	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5986682)							
EN2408732-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	98.4	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5988361)							
ES2426091-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	92.2	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5987065)							
ES2426449-001	PM_BH14_W	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	80.7	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	90.4	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5987065)							
ES2426449-001	PM_BH14_W	EP074: Chlorobenzene	108-90-7	25 µg/L	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5986510)							
EN2408732-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.7	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5987066)							
ES2426449-001	PM_BH14_W	EP080: C6 - C9 Fraction	----	325 µg/L	77.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5986510)							
EN2408732-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	94.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5987066)							
ES2426449-001	PM_BH14_W	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	73.3	70.0	130
EP080: BTEXN (QCLot: 5986510)							
EN2408732-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	90.8	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	93.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	102	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	110	70.0	130
EP080: BTEXN (QCLot: 5987066)							
ES2426449-001	PM_BH14_W	EP080: Benzene	71-43-2	25 µg/L	92.3	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 5987066) - continued							
ES2426449-001	PM_BH14_W	EP080: Toluene	108-88-3	25 µg/L	87.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	93.8	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	95.8	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.8	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	104	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5989659)							
ES2426640-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	110	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	71.1	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	114	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5989659)							
ES2426640-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	105	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	102	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	122	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	107	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5989659)							
ES2426640-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	86.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	114	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	96.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	104	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2426449**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 13-Aug-2024
Site	: ----	Issue Date	: 20-Aug-2024
Sampler	: NATALIE CHANDRA	No. of samples received	: 7
Order number	: ----	No. of samples analysed	: 7

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **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 SO4 2- by DA	ES2425894--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	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							
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	----	----	----	14-Aug-2024	12-Aug-2024	**2**
EA075: Redox Potential							
Clear Plastic Bottle - Natural							
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	----	----	----	14-Aug-2024	12-Aug-2024	**2**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	----	----	----	14-Aug-2024	12-Aug-2024	**2**

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	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	12-Aug-2024	✘
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	09-Sep-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) SMW_ENV226_S		**12-Aug-2024**	----	----	----	**13-Aug-2024**	19-Aug-2024	✓
Clear Plastic Bottle - Natural (EA015H) PM_BH14_W,	PM_BH15_W	**12-Aug-2024**	----	----	----	**16-Aug-2024**	19-Aug-2024	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	09-Sep-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	12-Aug-2024	✘
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	26-Aug-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	09-Sep-2024	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	09-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	09-Sep-2024	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	----	----	----	**14-Aug-2024**	08-Feb-2025	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)								
RS05		**12-Aug-2024**	**15-Aug-2024**	08-Feb-2025	✓	**15-Aug-2024**	08-Feb-2025	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	----	----	----	**15-Aug-2024**	09-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)								
RS05		**12-Aug-2024**	----	----	----	**16-Aug-2024**	09-Sep-2024	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F)								
PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	----	----	----	**16-Aug-2024**	09-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**15-Aug-2024**	09-Sep-2024	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G)								
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**14-Aug-2024**	14-Aug-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G)								
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	----	----	----	**15-Aug-2024**	09-Sep-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G)								
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	**15-Aug-2024**	09-Sep-2024	✓	**15-Aug-2024**	09-Sep-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G)								
PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	**15-Aug-2024**	09-Sep-2024	✓	**15-Aug-2024**	09-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	**----**	----	----	**14-Aug-2024**	14-Aug-2024	✓
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025) PM_BH14_W, SMW_ENV226_S	PM_BH15_W,	**12-Aug-2024**	**----**	----	----	**14-Aug-2024**	12-Aug-2024	×
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	19-Aug-2024	✓	**16-Aug-2024**	23-Sep-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	19-Aug-2024	✓	**15-Aug-2024**	23-Sep-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	19-Aug-2024	✓	**15-Aug-2024**	23-Sep-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP074) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) PM_BH14_W, QC03,	PM_BH15_W, SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	19-Aug-2024	✓	**15-Aug-2024**	23-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) PM_BH14_W, QC03, SMW_ENV226_S	PM_BH15_W, RS05,	**12-Aug-2024**	**14-Aug-2024**	19-Aug-2024	✓	**15-Aug-2024**	23-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB03		**01-Aug-2024**	**13-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP080) RS05		**12-Aug-2024**	**13-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP080) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) PM_BH14_W, QC03, SMW_ENV226_S	PM_BH15_W, RS05,	**12-Aug-2024**	**14-Aug-2024**	19-Aug-2024	✓	**15-Aug-2024**	23-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB03		**01-Aug-2024**	**13-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP080) RS05		**12-Aug-2024**	**13-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP080) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) TB03,	TS03	**01-Aug-2024**	**13-Aug-2024**	15-Aug-2024	✓	**14-Aug-2024**	15-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) PM_BH14_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC03,	SMW_ENV226_S	**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP080) RS05		**12-Aug-2024**	**13-Aug-2024**	26-Aug-2024	✓	**14-Aug-2024**	26-Aug-2024	✓
Clear glass VOC vial - HCl (EP080) PM_BH15_W		**12-Aug-2024**	**14-Aug-2024**	26-Aug-2024	✓	**15-Aug-2024**	26-Aug-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) PM_BH14_W, PM_BH15_W, QC03, SMW_ENV226_S	**12-Aug-2024**	**15-Aug-2024**	08-Feb-2025	✓	**16-Aug-2024**	08-Feb-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) PM_BH14_W, PM_BH15_W, QC03, SMW_ENV226_S	**12-Aug-2024**	**15-Aug-2024**	08-Feb-2025	✓	**16-Aug-2024**	08-Feb-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) PM_BH14_W, PM_BH15_W, QC03, SMW_ENV226_S	**12-Aug-2024**	**15-Aug-2024**	08-Feb-2025	✓	**16-Aug-2024**	08-Feb-2025	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) PM_BH14_W, PM_BH15_W, QC03, SMW_ENV226_S	**12-Aug-2024**	**15-Aug-2024**	08-Feb-2025	✓	**16-Aug-2024**	08-Feb-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 / *Analytical Methods*	*Method*	Count *QC*	*Regular*	Rate (%) ***Actual***	***Expected***	*Evaluation*	*Quality Control Specification*
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	5	32	**15.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	13	**15.38**	**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	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	28	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	8	79	**10.13**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	21	**19.05**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	32	**12.50**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	13	**7.69**	**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	19	**5.26**	**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 / *Analytical Methods*	*Method*	*Count* QC	*Count* Regular	*Rate (%)* Actual	*Rate (%)* Expected	*Evaluation*	*Quality Control Specification*
Laboratory Control Samples (LCS) - Continued							
Nitrite as N by Discrete Analyser	EK057G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	6	**50.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	10	79	**12.66**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	10	**30.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	32	**9.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	13	**7.69**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	79	**5.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	23	**8.70**	**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*	
Method Blanks (MB) - Continued							
Volatile Organic Compounds	EP074	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	10	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	16	**6.25**	**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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)

Analytical Methods	Method	Matrix	Method Descriptions
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)
Volatile Organic Compounds	EP074	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. This method is compliant with 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 LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. 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.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

HT

Environmental Division
Sydney
Work Order Reference
ES2427457

Telephone : + 61-2-8784 8555

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 2		Sample Disposal After:	
Number of Eskies:	1		

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
1	SMW-ENV009_W	19/8	W										
2	SMW_BH057_W	19/8											
3	SMW_BH057_S	19/8											
4	QC05	19/8											
~~4~~	QC06	19/8											
5	RS06	19/8											
6	TS04	~~19/8~~ 1/8											
7	TB04	~~19/8~~ 1/8											
~~8~~	~~TS6~~												
			TOTALS										

LAB ID	Sample ID	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	SMW-ENV009_W	/	/	/	/	/	/	/				
2	SMW_BH057_W	/	/	/	/	/	/	/				
3	SMW_BH057_S	/	/	/	/	/	/	/				
4	QC05		/	/	/			/				
~~4~~	QC06	Send to Envirolab										
5	RS06										/	/
6	TS04									/		
7	TB04									/		
~~8~~	~~TS6~~											
	TOTALS	0	0	0	0	0	0	0	0	0	0	0

Subcontract / Forward Lab / Split WO
Lab / Analysis:
Organised By / Date:
Relinquished By / Date: Envirolab
Connote / Courier: QC06
WO No:
Attach By PO / Internal Sheet:

Relinquished By:
NAME Natalie Chandra SIGNATURE [signature] DATE 20/8

Received By:
NAME Lucas SIGNATURE [signature] DATE 20/8/24 1739

	Y	N
Custody Seals Intact	Y	N
Samples Received Chilled	Y	N
Method of Shipment		

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2427457**

Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 3
Order number	: ----	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: SCL220037.10		
Sampler	: NATALIE CHANDRA		

Dates

Date Samples Received	: 20-Aug-2024 17:39	Issue Date	: 22-Aug-2024
Client Requested Due Date	: 27-Aug-2024	Scheduled Reporting Date	: **27-Aug-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.5, 9.2, 8.1'C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample QC06 being sent to Envirolab.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- 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 - EA005P pH (Auto Titrator)	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EP025 Dissolved Oxygen (DO)	WATER - W-02 8 Metals	WATER - W-10 TRH/BTEX/VOC/PAH	WATER - W-13 OC/OP/PCB
ES2427457-001	19-Aug-2024 00:00	SMW_ENV009_W	✓	✓	✓	✓	✓	✓	✓
ES2427457-002	19-Aug-2024 00:00	SMW_BH057_W	✓	✓	✓	✓	✓	✓	✓
ES2427457-003	19-Aug-2024 00:00	SMW_BH057_S	✓	✓	✓	✓	✓	✓	✓
ES2427457-004	19-Aug-2024 00:00	QC05		✓	✓		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA075 Redox Potential	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +
ES2427457-001	19-Aug-2024 00:00	SMW_ENV009_W	✓	✓	✓	✓	✓	✓	✓
ES2427457-002	19-Aug-2024 00:00	SMW_BH057_W	✓	✓	✓	✓	✓	✓	✓
ES2427457-003	19-Aug-2024 00:00	SMW_BH057_S	✓	✓	✓	✓	✓	✓	✓
ES2427457-004	19-Aug-2024 00:00	QC05				✓	✓		

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EK067G Total Phosphorus as P By Discrete Analyser	WATER - EP080 BTEXN	WATER - W-02T 8 metals (Total)	WATER - W-04 TRH/BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2427457-004	19-Aug-2024 00:00	QC05	✓				
ES2427457-005	19-Aug-2024 00:00	RS06			✓	✓	
ES2427457-006	01-Aug-2024 00:00	TS04		✓			
ES2427457-007	01-Aug-2024 00:00	TB04					✓

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							
SMW_BH057_S	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
SMW_BH057_W	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
EA075: Redox Potential							
SMW_BH057_S	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
SMW_BH057_W	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
EP025: Oxygen - Dissolved							
SMW_BH057_S	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
SMW_BH057_W	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	19-Aug-2024	20-Aug-2024	×	----	----
EP080: TRH Volatiles/BTEX							
TB04	Amber VOC Vial - Sulfuric Acid	15-Aug-2024	15-Aug-2024	20-Aug-2024	×	----	----
TS04	Amber VOC Vial - Sulfuric Acid	15-Aug-2024	15-Aug-2024	20-Aug-2024	×	----	----

Requested Deliverables

INVOICES		
- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au
JONATHAN PICKERDEN		
- *AU Certificate of Analysis - NATA (COA)	Email	JPickerden@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	JPickerden@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	JPickerden@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
LABS		
- *AU Certificate of Analysis - NATA (COA)	Email	labs@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	labs@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	labs@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	labs@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	labs@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	labs@epicenvironmental.com.au
NATALIE CHANDRA		
- *AU Certificate of Analysis - NATA (COA)	Email	nchandra@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	nchandra@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	nchandra@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	nchandra@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	nchandra@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	nchandra@epicenvironmental.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2427457**	Page	: 1 of 15
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 20-Aug-2024 17:39
Order number	: ----	Date Analysis Commenced	: 22-Aug-2024
C-O-C number	: ----	Issue Date	: 27-Aug-2024 17:48
Sampler	: NATALIE CHANDRA		
Site	: SCL220037.10		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- 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.
- 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.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.47	7.11	6.74	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	1980	8030	567	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	1230	4550	330	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	683	1150	115	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	-67.4	8.9	73.1	----	----
pH Redox	----	0.01	pH Unit	6.88	6.55	6.34	----	----
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	692	538	139	----	----
Total Alkalinity as CaCO3	----	1	mg/L	692	538	139	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	172	257	80	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	188	2110	36	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	158	198	13	----	----
Magnesium	7439-95-4	1	mg/L	70	159	20	----	----
Sodium	7440-23-5	1	mg/L	186	1130	72	----	----
Potassium	7440-09-7	1	mg/L	16	30	12	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	**0.016**	**0.016**	----
Nickel	7440-02-0	0.001	mg/L	<0.001	**0.005**	**0.001**	<0.001	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	----
Manganese	7439-96-5	0.001	mg/L	**0.964**	**0.439**	**0.082**	**0.083**	----
Iron	7439-89-6	0.05	mg/L	**21.9**	**1.46**	<0.05	<0.05	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	<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	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**7.12**	**0.71**	**0.02**	----	----
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								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser - Continued								
Nitrate as N	14797-55-8	0.01	mg/L	**0.08**	<0.01	**0.09**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.08**	<0.01	**0.09**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**8.4**	**1.0**	**0.2**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**8.5**	**1.0**	**0.3**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.42**	**0.05**	**0.04**	**0.02**	----
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								
ø Total Anions	----	0.01	meq/L	**22.7**	**75.6**	**5.46**	----	----
ø Total Cations	----	0.01	meq/L	**22.1**	**72.9**	**5.73**	----	----
ø Ionic Balance	----	0.01	%	**1.26**	**1.84**	**2.46**	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**4.8**	**6.3**	**5.5**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----
^ **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	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<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	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<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								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.07**	<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**	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	**0.02**	**0.02**	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	**0.03**	**0.03**	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.07**	<0.01	**0.03**	**0.03**	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**80.2**	**75.4**	**112**	**97.0**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**114**	**112**	**134**	**120**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**96.9**	**88.5**	**113**	**104**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**102**	**100**	**93.4**	**99.7**	----
Toluene-D8	2037-26-5	5	%	**97.9**	**102**	**97.1**	**102**	----
4-Bromofluorobenzene	460-00-4	5	%	**104**	**105**	**101**	**105**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**27.0**	**27.8**	**23.8**	**24.1**	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**56.6**	**57.3**	**55.5**	**53.2**	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**68.9**	**73.0**	**49.2**	**55.9**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**79.3**	**77.0**	**87.1**	**79.6**	----
Anthracene-d10	1719-06-8	1.0	%	**82.3**	**80.9**	**94.6**	**86.0**	----
4-Terphenyl-d14	1718-51-0	1.0	%	**81.1**	**79.3**	**96.6**	**87.4**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**121**	**118**	**110**	**118**	**109**
Toluene-D8	2037-26-5	2	%	**107**	**112**	**106**	**112**	**96.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV009_W	SMW_BH057_W	SMW_BH057_S	QC05	RS06
			Sampling date / time	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00	19-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427457-001	ES2427457-002	ES2427457-003	ES2427457-004	ES2427457-005
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	2	%	120	123	118	123	108
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	97.9	100.0	97.1	92.2	----
13C8-PFOA	----	0.02	%	96.4	95.6	97.6	94.4	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS04	TB04	----	----	----
			Sampling date / time	01-Aug-2024 00:00	01-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2427457-006	ES2427457-007	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	**14**	<1	----	----	----
Toluene	108-88-3	2	µg/L	**14**	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	**14**	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	**15**	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	**15**	<2	----	----	----
^ Total Xylenes	----	2	µg/L	**30**	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	**72**	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	**17**	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**110**	**110**	----	----	----
Toluene-D8	2037-26-5	2	%	**94.2**	**93.2**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**104**	**105**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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

QUALITY CONTROL REPORT

Work Order	: **ES2427457**	Page	: 1 of 20
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 20-Aug-2024
Order number	: ----	Date Analysis Commenced	: 22-Aug-2024
C-O-C number	: ----	Issue Date	: 27-Aug-2024
Sampler	: NATALIE CHANDRA		
Site	: SCL220037.10		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6009649)									
ES2427155-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.99	7.25	3.7	0% - 20%
ES2427578-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.70	7.80	1.3	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6009645)									
EN2409340-011	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	514	516	0.5	0% - 20%
EN2409340-007	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	317	319	0.7	0% - 20%
ES2427578-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	563	560	0.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6008315)									
ES2426982-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	14200	14100	0.3	0% - 20%
EW2403841-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	56	56	0.0	No Limit
EW2403842-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	88	72	20.7	No Limit
EA075: Redox Potential (QC Lot: 6006882)									
ES2427457-001	SMW_ENV009_W	EA075: Redox Potential	----	0.1	mV	-67.4	-69.2	2.6	No Limit
		EA075: pH Redox	----	0.01	pH Unit	6.88	6.88	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6009650)									
ES2427449-017	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	92	89	4.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	92	89	4.0	0% - 20%
ES2427578-001	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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
ED037P: Alkalinity by PC Titrator (QC Lot: 6009650) - continued									
ES2427578-001	Anonymous	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	149	147	1.4	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	149	147	1.4	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6007020)									
ES2427457-001	SMW_ENV009_W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	172	175	2.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6007019)									
ES2427489-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	38	38	0.0	0% - 20%
ES2427457-001	SMW_ENV009_W	ED045G: Chloride	16887-00-6	1	mg/L	188	190	1.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6008117)									
EN2409348-005	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	179	177	1.4	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	304	297	2.5	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	580	570	1.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	22	21	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6008118)									
ES2427457-003	SMW_BH057_S	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	0.016	0.017	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.082	0.085	4.4	0% - 20%
		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
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6008134)									
EN2409319-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0011	0.0011	0.0	0% - 50%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.178	0.193	8.4	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.041	0.042	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	1.06	1.08	1.0	0% - 20%
ES2427457-005	RS06	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 6008119)									
ES2427457-003	SMW_BH057_S	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6011487)									
EN2409338-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2427333-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6008917)									
EN2409313-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6009759)									
EN2409313-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.03	29.5	No Limit
ES2427304-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.15	0.13	16.6	0% - 50%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6007015)									
ES2427350-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2427267-001	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: 6009760)									
ES2427304-011	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2427630-003	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: 6009755)									
ES2427627-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.2	45.6	No Limit
ES2427304-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	1.5	8.4	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6009754)									
ES2427627-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.05	0.05	0.0	No Limit
ES2427304-011	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.06	26.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6007018)									
ES2427498-009	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.25	0.25	0.0	0% - 20%
ES2427457-001	SMW_ENV009_W	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2427581-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6008279) - continued									
ES2427581-001	Anonymous	EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2427581-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2427581-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2427581-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6008279) - continued									
ES2427457-001	SMW_ENV009_W	EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2427581-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	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 (%)***
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6008279) - continued									
ES2427581-001	Anonymous	EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2427581-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6008279)									
ES2427457-001	SMW_ENV009_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2427581-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074G: Trihalomethanes (QC Lot: 6008279) - continued									
ES2427581-001	Anonymous	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6007281)									
CA2405058-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2427414-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6008280)									
ES2427457-001	SMW_ENV009_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2427581-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6007281)									
CA2405058-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2427414-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6008280)									
ES2427457-001	SMW_ENV009_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2427581-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6007281)									
CA2405058-001	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2427414-005	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP080: BTEXN (QC Lot: 6008280)									
ES2427457-001	SMW_ENV009_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP080: BTEXN (QC Lot: 6008280) - continued									
ES2427457-001	SMW_ENV009_W	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2427581-001	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6007091)									
ES2427196-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
ES2427196-010	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6007091)									
ES2427196-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	8.73	9.08	3.9	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	<0.2	<0.2	0.0	No Limit
ES2427196-010	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	<0.2	<0.2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6007091)									
ES2427196-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.19	0.20	6.8	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2427196-010	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6007091) - continued									
ES2427196-010	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6009649)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.7	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6009645)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	99.1	89.9	110
				<1	2100 µS/cm	96.9	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6008315)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.2	87.0	109
				<10	293 mg/L	114	75.2	126
				<10	2410 mg/L	97.8	83.0	124
EA075: Redox Potential (QCLot: 6006882)								
EA075: Redox Potential	----	----	mV	----	234 mV	99.0	96.0	106
				----	300 mV	99.9	97.0	105
				----	86 mV	89.6	89.0	111
ED037P: Alkalinity by PC Titrator (QCLot: 6009650)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	91.9	81.0	115
				----	50 mg/L	103	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6007020)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	104	82.0	122
				<1	500 mg/L	96.6	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6007019)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	98.3	80.9	127
				<1	1000 mg/L	95.8	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6008117)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.6	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	100	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	98.3	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6008118)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.4	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.9	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	88.1	85.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6008118) - continued								
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.0	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.6	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.2	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.0	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	87.8	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 6008134)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100.0	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.7	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.2	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.3	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 6008119)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.4	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6011487)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.1	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 6008917)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	93.8	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6009759)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	107	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6007015)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6009760)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	107	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6009755)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	92.3	69.0	123
				<0.1	1 mg/L	95.2	70.0	123
				<0.1	5 mg/L	91.8	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6009754)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	91.1	71.3	126
				<0.01	0.442 mg/L	83.4	71.3	126
				<0.01	1 mg/L	94.4	70.0	130

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6007018)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	100	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6006659)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	87.7	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 6006660)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	84.8	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	77.4	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	93.3	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.2	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	93.2	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	87.4	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	90.3	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	90.3	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	94.4	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	95.4	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	90.2	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	90.4	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	91.9	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	90.2	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	93.6	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	93.2	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	99.1	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	93.9	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	99.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	87.9	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	101	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6006660)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	80.7	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	80.7	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.2	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	79.1	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	99.2	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	94.5	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	86.4	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	105	68.4	116

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6006660) - continued								
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	95.6	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	101	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	94.1	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	96.2	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	89.1	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	94.5	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	91.5	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	96.2	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	87.1	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	85.0	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	105	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6008279)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	92.3	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	105	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	108	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	108	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	112	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	105	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	109	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	111	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	113	65.0	123
EP074B: Oxygenated Compounds (QCLot: 6008279)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	86.6	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	79.2	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	79.7	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	76.6	65.0	137
EP074C: Sulfonated Compounds (QCLot: 6008279)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	106	72.8	127
EP074D: Fumigants (QCLot: 6008279)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	110	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.4	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	90.4	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	87.2	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	90.1	69.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6008279)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	83.9	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	104	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	104	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	115	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	111	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	110	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	104	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	110	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	107	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	108	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	112	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	107	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	108	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	105	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.6	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	90.2	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	88.4	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	104	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	87.5	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	75.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	75.1	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	84.1	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	86.7	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	90.0	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	86.0	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	129	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 6008279)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.1	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.3	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.0	75.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 6008279) - continued								
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.3	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	96.6	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	101	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	106	67.0	123
EP074G: Trihalomethanes (QCLot: 6008279)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	103	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	94.0	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	82.0	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	74.7	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6006658)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.3	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	76.1	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	72.2	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	71.5	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	76.0	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	76.6	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	80.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	79.9	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	79.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.8	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	69.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	71.9	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	78.9	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	76.0	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	79.5	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	78.9	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6006657)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	72.7	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	82.7	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	78.5	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6007281)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.7	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6008280)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6008280) - continued								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	108	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6006657)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.5	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	69.5	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	60.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6007281)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	78.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6008280)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	114	75.0	127
EP080: BTEXN (QCLot: 6007281)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.7	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.4	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	87.3	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	89.3	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	92.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	75.5	124
EP080: BTEXN (QCLot: 6008280)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	106	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	110	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	114	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	117	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6007091)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	89.5	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	84.7	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	91.3	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6007091)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	85.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.3	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	87.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.3	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.5	71.0	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	LCS Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6007091)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	84.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	95.7	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	103	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	120	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6007020)							
ES2427457-001	SMW_ENV009_W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6007019)							
ES2427457-001	SMW_ENV009_W	ED045G: Chloride	16887-00-6	250 mg/L	94.7	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6008118)							
ES2427457-002	SMW_BH057_W	EG020A-F: Arsenic	7440-38-2	1 mg/L	104	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	92.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	91.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.8	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	97.1	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	90.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	94.8	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	95.9	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 6008134)							
EN2409319-006	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.7	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.5	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.0	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	101	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	95.4	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6008119)							
ES2427457-001	SMW_ENV009_W	EG035F: Mercury	7439-97-6	0.01 mg/L	124	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6011487)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6011487) - continued							
EN2409329-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	83.9	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6008917)							
EN2409313-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	110	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6009759)							
EN2409313-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	102	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6007015)							
ES2427267-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	122	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6009760)							
ES2427304-011	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	100	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6009755)							
ES2427304-012	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	10 mg/L	88.2	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6009754)							
ES2427304-012	Anonymous	EK067G: Total Phosphorus as P	----	2 mg/L	101	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6007018)							
ES2427457-001	SMW_ENV009_W	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	119	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 6008279)							
ES2427457-001	SMW_ENV009_W	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	102	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	93.8	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 6008279)							
ES2427457-001	SMW_ENV009_W	EP074: Chlorobenzene	108-90-7	25 µg/L	99.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6007281)							
CA2405058-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	82.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6008280)							
ES2427457-001	SMW_ENV009_W	EP080: C6 - C9 Fraction	----	325 µg/L	125	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6007281)							
CA2405058-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	80.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6008280)							
ES2427457-001	SMW_ENV009_W	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	117	70.0	130
EP080: BTEXN (QCLot: 6007281)							
CA2405058-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	101	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	107	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	92.0	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.9	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EP080: BTEXN (QCLot: 6007281) - continued							
CA2405058-001	Anonymous	EP080: ortho-Xylene	95-47-6	25 µg/L	96.8	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	89.0	70.0	130
EP080: BTEXN (QCLot: 6008280)							
ES2427457-001	SMW_ENV009_W	EP080: Benzene	71-43-2	25 µg/L	118	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	127	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	124	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	124	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	125	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	114	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6007091)							
ES2427196-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	102	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	89.0	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	92.2	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6007091)							
ES2427196-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	86.1	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	91.5	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	90.1	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.0	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	98.2	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6007091)							
ES2427196-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	76.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	78.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	91.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	103	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2427457**	Page	: 1 of 15
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 20-Aug-2024
Site	: SCL220037.10	Issue Date	: 27-Aug-2024
Sampler	: NATALIE CHANDRA	No. of samples received	: 7
Order number	: ----	No. of samples analysed	: 7

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **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 SO4 2- by DA	ES2427457--001	SMW_ENV009_W	**Sulfate as SO4 - Turbidimetric**	14808-79-8	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 SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	----	----	----	23-Aug-2024	19-Aug-2024	**4**
EA075: Redox Potential							
Clear Plastic Bottle - Natural SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	----	----	----	22-Aug-2024	19-Aug-2024	**3**
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	----	----	----	22-Aug-2024	21-Aug-2024	**1**
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	----	----	----	22-Aug-2024	21-Aug-2024	**1**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	----	----	----	22-Aug-2024	19-Aug-2024	**3**
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid TB04		22-Aug-2024	15-Aug-2024	**7**	23-Aug-2024	15-Aug-2024	**8**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid TB04		22-Aug-2024	15-Aug-2024	**7**	23-Aug-2024	15-Aug-2024	**8**
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid TS04,	TB04	22-Aug-2024	15-Aug-2024	**7**	23-Aug-2024	15-Aug-2024	**8**

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	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method		*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) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**23-Aug-2024**	19-Aug-2024	×
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**23-Aug-2024**	16-Sep-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**23-Aug-2024**	26-Aug-2024	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**23-Aug-2024**	16-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**22-Aug-2024**	19-Aug-2024	×
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**23-Aug-2024**	02-Sep-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**22-Aug-2024**	16-Sep-2024	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**22-Aug-2024**	16-Sep-2024	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**23-Aug-2024**	16-Sep-2024	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	----	----	----	**23-Aug-2024**	15-Feb-2025	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS06		**19-Aug-2024**	**23-Aug-2024**	15-Feb-2025	✓	**23-Aug-2024**	15-Feb-2025	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	----	----	----	**26-Aug-2024**	16-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS06		**19-Aug-2024**	----	----	----	**27-Aug-2024**	16-Sep-2024	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	----	----	----	**23-Aug-2024**	16-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**26-Aug-2024**	16-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**22-Aug-2024**	21-Aug-2024	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**26-Aug-2024**	16-Sep-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	**23-Aug-2024**	16-Sep-2024	✓	**26-Aug-2024**	16-Sep-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	16-Sep-2024	✓	**26-Aug-2024**	16-Sep-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**22-Aug-2024**	21-Aug-2024	×
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025) SMW_ENV009_W, SMW_BH057_S	SMW_BH057_W,	**19-Aug-2024**	----	----	----	**22-Aug-2024**	19-Aug-2024	×
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**27-Aug-2024**	02-Oct-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) SMW_ENV009_W		**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**26-Aug-2024**	02-Oct-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_BH057_W, QC05	SMW_BH057_S,	**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**27-Aug-2024**	02-Oct-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) SMW_ENV009_W		**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**26-Aug-2024**	02-Oct-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_BH057_W, QC05	SMW_BH057_S,	**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**27-Aug-2024**	02-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**26-Aug-2024**	02-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) SMW_ENV009_W, SMW_BH057_S, RS06	SMW_BH057_W, QC05,	**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**27-Aug-2024**	02-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB04		**01-Aug-2024**	**22-Aug-2024**	15-Aug-2024	×	**23-Aug-2024**	15-Aug-2024	×
Amber VOC Vial - Sulfuric Acid (EP080) RS06		**19-Aug-2024**	**22-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) SMW_ENV009_W, SMW_BH057_S, RS06	SMW_BH057_W, QC05,	**19-Aug-2024**	**23-Aug-2024**	26-Aug-2024	✓	**27-Aug-2024**	02-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB04		**01-Aug-2024**	**22-Aug-2024**	15-Aug-2024	×	**23-Aug-2024**	15-Aug-2024	×
Amber VOC Vial - Sulfuric Acid (EP080) RS06		**19-Aug-2024**	**22-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) TS04,	TB04	**01-Aug-2024**	**22-Aug-2024**	15-Aug-2024	×	**23-Aug-2024**	15-Aug-2024	×
Amber VOC Vial - Sulfuric Acid (EP080) RS06		**19-Aug-2024**	**22-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	02-Sep-2024	✓	**23-Aug-2024**	02-Sep-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	15-Feb-2025	✓	**25-Aug-2024**	15-Feb-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) SMW_ENV009_W, SMW_BH057_S,	SMW_BH057_W, QC05	**19-Aug-2024**	**23-Aug-2024**	15-Feb-2025	✓	**25-Aug-2024**	15-Feb-2025	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / **Container** / Client Sample ID(s)		**Sample Date**	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	**Date analysed**	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
SMW_ENV009_W,	SMW_BH057_W,	**19-Aug-2024**	**23-Aug-2024**	15-Feb-2025	✓	**25-Aug-2024**	15-Feb-2025	✓
SMW_BH057_S,	QC05							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
SMW_ENV009_W,	SMW_BH057_W,	**19-Aug-2024**	**23-Aug-2024**	15-Feb-2025	✓	**25-Aug-2024**	15-Feb-2025	✓
SMW_BH057_S,	QC05							

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	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	26	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	4	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	26	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	26	**11.54**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**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							
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	**20.00**	**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
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	8	**37.50**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	26	**19.23**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	8	**37.50**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	**20.00**	**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
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	33	**6.06**	**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 / *Analytical Methods*	*Method*	*Count* QC	*Count* Regular	*Rate (%)* Actual	*Rate (%)* Expected	Evaluation	*Quality Control Specification*
Method Blanks (MB) - Continued							
Volatile Organic Compounds	EP074	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	**0.00**	**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
Pesticides by GCMS	EP068	0	4	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	4	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate forms highly-coloured ferric thiocynate 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)

Analytical Methods	Method	Matrix	Method Descriptions
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)
Volatile Organic Compounds	EP074	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. This method is compliant with 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 LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. 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.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QC200
Envirolab.

* Send to Envirolab - QC200
see COC page 2

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.14	Lab:	ALS Sydney
Project/Site:	SCL220037.14 - Clyde Zone 5a RAP	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	JL	Lab Batch No:	
Phone / Email:	0447 403 720	Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 2		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
	~~CZ5a_MW101~~												
1	CZ5a_MW102	2/9/24	W	FULL SUITE									
2	CZ5a_MW103	2/9/24	W	FULL SUITE									
3	QC100	"	"										
*	QC200	"	"										
4	RS07	"	"										
5	TB05	260824											
6	TS05	220824											
			TOTALS										

HT

Sample ID	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Chlorinated herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major Ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
~~CZ5a_MW101~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~					
CZ5a_MW102	x	x	x	x	x	x	x				
CZ5a_MW103		x	x	x	x	x					
QC100		x	x	x							
QC200		x	x	x							
RS07										x	x
TB05									x		
TS05									x		
TOTALS	2	5	5	5	3	3	2	0	2	1	1

Relinquished By: NAME JENNY LAW ~~Natalie Chandra~~	SIGNATURE JL	DATE 2/9/24	
Received By: NAME FAS	SIGNATURE	DATE 2/9/24 12:32	
Custody Seals Intact		Y	N
Samples Received Chilled		Y	N
Method of Shipment			

NOTES:
Bottles supplied for As speciation to be placed **on HOLD and NOT analysed.**
TDS: total dissolved solids, EC: electrical conductivity, ORP: oxidation reduction potential, DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

Environmental Division
Sydney
Work Order Reference
ES2428614

Telephone : + 61-2-8784 8555

SEND TO ENIROLAB
QC200

Chain of Custody Record

Project No:	SCL220037.14	Lab:	ALS Sydney
Project/Site:	SCL220037.14 - Clyde Zone 5a RAP	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	JL	Lab Batch No:	
Phone / Email:	0447 403 720	Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page	2 of 2.	Sample Disposal After:	
Number of Eskies:	1		

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid, Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
	~~CZ5a_MW101~~												
	~~CZ5a_MW102~~												
	~~CZ5a_MW103~~												
	~~QC100~~												
☆	QC200	2/9/24	W	SEND TO ENVIROLAB									
	~~RS07~~												
	~~TB05~~												
	~~TS05~~												
			TOTALS										

Sample ID	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Chlorinated herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients**: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major ions**: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
~~CZ5a_MW101~~	X	X	X	X	X	X	X				
~~CZ5a_MW102~~	X	X	X	X	X	X	X				
~~CZ5a_MW103~~		X	X	X	X	X					
~~QC100~~		X	X	X							
QC200		X	X	X							
~~RS07~~										X	X
~~TB05~~									X		
~~TS05~~									X		
TOTALS	2	5	5	5	3	3	2	0	2	1	1

Relinquished By:	NAME: Natalie Chandra Jenny Law	SIGNATURE	DATE: 2/9/24	
Received By:	NAME	SIGNATURE	DATE	
Custody Seals Intact	Y	N		
Samples Received Chilled	Y	N		
Method of Shipment				

NOTES:

Bottles supplied for As speciation to be placed **on HOLD and NOT analysed.**

~~TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen~~

8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg

TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)

BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene

PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)

PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)

OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)

Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)

VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2428614**

Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.14	Page	: 1 of 3
Order number	: ----	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: CLYDE ZONE 5a RAP		
Sampler	: JL		

Dates

Date Samples Received	: 02-Sep-2024 12:30	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 09-Sep-2024	Scheduled Reporting Date	: **09-Sep-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 5.8'C
Receipt Detail	:	No. of samples received / analysed	: 6 / 6

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
- 03/09/2024: This is an updated SRN which indicates updated analysis for samples 001 and 002 on this work order.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- 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 QC200 has been forwarded to ENVIROLAB.

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 - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EK067G Total Phosphorus as P By Discrete Analyser	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-16 TRH/BTEXN/PAH/OC/OP/PCB/8 Metals	WATER - W-23 minus BTEX SVOC/VOC without BTEX
ES2428614-001	02-Sep-2024 00:00	CZ5a_MW102	✓	✓	✓	✓	✓	✓	✓
ES2428614-002	02-Sep-2024 00:00	CZ5a_MW103	✓	✓	✓	✓	✓	✓	✓
ES2428614-003	02-Sep-2024 00:00	QC100	✓		✓	✓		✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA075 Redox Potential	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP025 Dissolved Oxygen (DO)	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,
ES2428614-001	02-Sep-2024 00:00	CZ5a_MW102	✓	✓	✓	✓	✓	✓	✓
ES2428614-002	02-Sep-2024 00:00	CZ5a_MW103	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EK055G-NH4 Ammonium as N	WATER - EP080 BTEXN	WATER - EP202SL Phenoxyacetic Acid	WATER - EP234H Triazine Herbicides (11 analytes)	WATER - W-05T TRH/BTEXN/8 Metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2428614-001	02-Sep-2024 00:00	CZ5a_MW102	✓		✓	✓		
ES2428614-002	02-Sep-2024 00:00	CZ5a_MW103	✓		✓	✓		
ES2428614-003	02-Sep-2024 00:00	QC100			✓	✓		
ES2428614-004	02-Sep-2024 00:00	RS07					✓	
ES2428614-005	26-Aug-2024 00:00	TB05						✓

			WATER - EK055G-NH4 Ammonium as N	WATER - EP080 BTEXN	WATER - EP202SL Phenoxyacetic Acid	WATER - EP234H Triazine Herbicides (11 analytes)	WATER - W-05T TRH/BTEXN/8 Metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2428614-006	22-Aug-2024 00:00	TS05		✓				

Proactive Holding Time Report

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

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

JONATHAN PICKERDEN

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

NATALIE CHANDRA

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2428614**	Page	: 1 of 22
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.14	Date Samples Received	: 02-Sep-2024 12:30
Order number	: ----	Date Analysis Commenced	: 02-Sep-2024
C-O-C number	: ----	Issue Date	: 09-Sep-2024 12:42
Sampler	: JL		
Site	: CLYDE ZONE 5a RAP		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 6		
No. of samples analysed	: 6		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- EP234: Poor matrix spike recovery for particular compounds due to matrix interferences and high matrix spike recovery has been noted for particular compounds due to ion enhancement.
- EP202: Poor matrix spike recoveries for Picloram and Clopyralid due to matrix effects.
- 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.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- EK057: It has been noted that NO2 is greater than NOx, however this difference has been confirm by reanalysis.
- 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.
- Ep075(SIM) : Particular sample required dilution due to sample matrix . LOR values have been adjusted accordingly.
- Sample QC200 has been forwarded to ENVIROLAB.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.77**	**7.33**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**14600**	**33600**	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**9560**	**23000**	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**1800**	**3960**	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**-37.4**	**-21.2**	----	----	----
pH Redox	----	0.01	pH Unit	**7.31**	**6.78**	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**822**	**768**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**822**	**768**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**342**	**343**	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**4120**	**11000**	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**222**	**364**	----	----	----
Magnesium	7439-95-4	1	mg/L	**303**	**742**	----	----	----
Sodium	7440-23-5	1	mg/L	**2120**	**6720**	----	----	----
Potassium	7440-09-7	1	mg/L	**49**	**198**	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.04**	<0.10	<0.10	----	----
Arsenic	7440-38-2	0.001	mg/L	**0.010**	<0.010	<0.010	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0010	<0.0010	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Nickel	7440-02-0	0.001	mg/L	**0.013**	<0.010	<0.010	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Zinc	7440-66-6	0.005	mg/L	**0.024**	<0.050	<0.050	----	----
Manganese	7439-96-5	0.001	mg/L	**1.14**	**0.408**	**0.402**	----	----
Iron	7439-89-6	0.05	mg/L	**7.59**	**12.1**	**12.6**	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
EG049F: Dissolved Trivalent Chromium								
Trivalent Chromium	16065-83-1	0.01	mg/L	<0.01	<0.01	----	----	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**2.85**	**7.31**	----	----	----
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	**2.83**	**7.30**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.03**	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**4.1**	**8.5**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**4.1**	**8.5**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.34**	**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	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**140**	**333**	----	----	----
ø Total Cations	----	0.01	meq/L	**129**	**376**	----	----	----
ø Ionic Balance	----	0.01	%	**3.82**	**6.18**	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**5.9**	**7.0**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	**3**	<2	<2	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	**142**	<4	<4	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP075C: Phthalate Esters - Continued								
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	----	----
Isophorone	78-59-1	2	µg/L	<2	<2	<2	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	----	----
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP075E: Nitroaromatics and Ketones - Continued								
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	----	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP075H: Anilines and Benzidines - Continued								
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	<2	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	----	----
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	----	----
gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	<2	<2	----	----
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	<2	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	----	----
4.4`-DDE	72-55-9	2	µg/L	<2	<2	<2	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	----	----
Endrin	72-20-8	2	µg/L	<2	<2	<2	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	----	----
4.4`-DDD	72-54-8	2	µg/L	<2	<2	<2	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	----	----
4.4`-DDT	50-29-3	4	µg/L	<4	<4	<4	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	<4	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	<4	<4	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	----	----
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
				Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
	Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
					Result	Result	Result	Result	Result
EP075J: Organophosphorus Pesticides - Continued									
	Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	----	----
	Malathion	121-75-5	2	µg/L	<2	<2	<2	----	----
	Fenthion	55-38-9	2	µg/L	<2	<2	<2	----	----
	Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	----	----
	Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	----	----
	Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	----	----
	Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	----	----
	Ethion	563-12-2	2	µg/L	<2	<2	<2	----	----
EP080/071: Total Petroleum Hydrocarbons									
	C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
	C10 - C14 Fraction	----	50	µg/L	**180**	<50	<50	<50	----
	C15 - C28 Fraction	----	100	µg/L	**420**	<100	<100	<100	----
	C29 - C36 Fraction	----	50	µg/L	**60**	<50	<50	<50	----
^	**C10 - C36 Fraction (sum)**	----	50	µg/L	**660**	<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	**240**	<100	<100	<100	----
	>C16 - C34 Fraction	----	100	µg/L	**430**	<100	<100	<100	----
	>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^	**>C10 - C40 Fraction (sum)**	----	100	µg/L	**670**	<100	<100	<100	----
^	**>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	**240**	<100	<100	<100	----
EP080: BTEXN									
	Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
	Toluene	108-88-3	2	µg/L	**6**	<2	<2	<2	<2
	Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
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	**6**	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	----	----
2.4-DB	94-82-6	10	µg/L	<10	<10	<10	----	----
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	----	----
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	----	----
MCPA	94-74-6	10	µg/L	<10	<10	<10	----	----
2.4-DP	120-36-5	10	µg/L	<10	<10	<10	----	----
2.4-D	94-75-7	10	µg/L	<10	<10	<10	----	----
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	----	----
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	<10	----	----
2.4.5-T	93-76-5	10	µg/L	<10	<10	<10	----	----
MCPB	94-81-5	10	µg/L	<10	<10	<10	----	----
Picloram	1918-02-1	10	µg/L	<10	<10	<10	----	----
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	----	----
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	----	----
2.6-D	575-90-6	10	µg/L	<10	<10	<10	----	----
2.4.6-T	575-89-3	10	µg/L	<10	<10	<10	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.02**	<0.01	<0.01	----	----
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	**0.06**	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.04**	<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	----	----
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.02**	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.13**	<0.01	<0.01	----	----
EP234H: Triazine Herbicides								
Ametryn	834-12-8	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Atrazine	1912-24-9	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Atrazine-desethyl	6190-65-4	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Atrazine-desisopropyl	1007-28-9	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Cyanazine	21725-46-2	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Cyromazine	66215-27-8	0.05	µg/L	<0.05	<0.05	<0.05	----	----
Prometryn	7287-19-6	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Propazine	139-40-2	0.01	µg/L	<0.01	<0.01	<0.01	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued								
Simazine	122-34-9	0.02	µg/L	<0.02	<0.02	<0.02	----	----
Terbuthylazine	5915-41-3	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Terbutryn	886-50-0	0.01	µg/L	<0.01	<0.01	<0.01	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**91.0**	**91.0**	**106**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**112**	**116**	**136**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**120**	**110**	**130**	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**110**	**117**	**107**	----	----
Toluene-D8	2037-26-5	5	%	**119**	**121**	**118**	----	----
4-Bromofluorobenzene	460-00-4	5	%	**118**	**124**	**117**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**21.1**	**27.7**	**39.9**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**48.7**	**57.0**	**72.2**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**72.6**	**34.7**	**60.6**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**63.1**	**65.1**	**72.4**	----	----
Anthracene-d10	1719-06-8	1.0	%	**92.3**	**95.9**	**84.0**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**78.3**	**74.5**	**83.1**	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	**40.5**	**39.9**	**52.3**	----	----
Phenol-d6	13127-88-3	2	%	**29.4**	**25.9**	**37.6**	----	----
2-Chlorophenol-D4	93951-73-6	2	%	**57.3**	**53.9**	**68.6**	----	----
2.4.6-Tribromophenol	118-79-6	2	%	**59.2**	**51.9**	**59.1**	----	----
EP075T: Base/Neutral Extractable Surrogates								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW102	CZ5a_MW103	QC100	RS07	TB05
			Sampling date / time	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	02-Sep-2024 00:00	26-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	ES2428614-001	ES2428614-002	ES2428614-003	ES2428614-004	ES2428614-005
				Result	Result	Result	Result	Result
EP075T: Base/Neutral Extractable Surrogates - Continued								
Nitrobenzene-D5	4165-60-0	2	%	63.6	58.8	74.3	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	49.8	46.8	58.3	----	----
2-Fluorobiphenyl	321-60-8	2	%	55.6	52.1	62.9	----	----
Anthracene-d10	1719-06-8	2	%	67.6	70.2	80.9	----	----
4-Terphenyl-d14	1718-51-0	2	%	71.2	74.6	83.9	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	92.3	97.3	89.0	107	101
Toluene-D8	2037-26-5	2	%	99.2	101	98.2	101	102
4-Bromofluorobenzene	460-00-4	2	%	135	137	137	118	112
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	102	102	104	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	95.2	99.2	97.0	----	----
13C8-PFOA	----	0.02	%	91.9	92.7	96.2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TS05	----	----	----	----
			Sampling date / time	22-Aug-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2428614-006	--------	--------	--------	--------
				Result	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	**15**	----	----	----	----
Toluene	108-88-3	2	µg/L	**15**	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	**14**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	**15**	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	**16**	----	----	----	----
^ **Total Xylenes**	----	2	µg/L	**31**	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	**75**	----	----	----	----
Naphthalene	91-20-3	5	µg/L	**22**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**100**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**101**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**109**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
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
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	64	140
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2428614**	Page	: 1 of 22
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.14	Date Samples Received	: 02-Sep-2024
Order number	: ----	Date Analysis Commenced	: 02-Sep-2024
C-O-C number	: ----	Issue Date	: 09-Sep-2024
Sampler	: JL		
Site	: CLYDE ZONE 5a RAP		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 6		
No. of samples analysed	: 6		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6029012)									
ES2428566-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.09	8.11	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6029011)									
EN2409906-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2900	2900	0.0	0% - 20%
EN2409906-010	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1080	1080	0.2	0% - 20%
ES2428614-002	CZ5a_MW103	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	33600	33100	1.5	0% - 20%
ES2428566-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	46500	47500	2.1	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6034326)									
ES2428343-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	37200	36700	1.5	0% - 20%
ES2428343-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	6510	6510	0.1	0% - 20%
ES2428599-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	3380	3370	0.2	0% - 20%
ES2428614-001	CZ5a_MW102	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	9560	9660	1.0	0% - 20%
EA075: Redox Potential (QC Lot: 6028330)									
ES2428614-001	CZ5a_MW102	EA075: Redox Potential	----	0.1	mV	-37.4	-43.1	14.2	No Limit
		EA075: pH Redox	----	0.01	pH Unit	7.31	7.32	0.1	0% - 20%
EA075: Redox Potential (QC Lot: 6028790)									
ES2428614-002	CZ5a_MW103	EA075: Redox Potential	----	0.1	mV	-21.2	-23.1	8.6	No Limit
		EA075: pH Redox	----	0.01	pH Unit	6.78	6.78	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6029013)									
ES2428566-001	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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
ED037P: Alkalinity by PC Titrator (QC Lot: 6029013) - continued									
ES2428566-001	Anonymous	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	116	116	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	116	116	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6031052)									
ES2428584-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	15	15	0.0	0% - 50%
ME2401404-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	86	92	6.1	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6031051)									
ES2428463-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	117	119	2.2	0% - 20%
ES2428614-001	CZ5a_MW102	ED045G: Chloride	16887-00-6	1	mg/L	4120	4170	1.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6029253)									
EN2409995-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	47	46	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	56	56	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	813	804	1.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	10	10	0.0	No Limit
ES2428651-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	62	61	1.8	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	22	21	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	106	105	1.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6029255)									
ES2428599-008	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	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.339	0.344	1.3	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.076	0.076	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.038	0.038	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.11	0.11	0.0	No Limit
ES2428651-003	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: Manganese	7439-96-5	0.001	mg/L	0.109	0.108	0.0	0% - 20%
		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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6029255) - continued									
ES2428651-003	Anonymous	EG020A-F: Iron	7439-89-6	0.05	mg/L	0.25	0.25	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6031524)									
ES2428581-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.012	59.7	No Limit
ME2401399-013	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.019	0.020	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.007	0.008	19.5	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6029252)									
ES2428513-054	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2428614-001	CZ5a_MW102	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6033887)									
EN2409994-022	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EN2409994-031	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6034816)									
ES2428614-001	CZ5a_MW102	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6031462)									
ES2428460-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.05	0.0	No Limit
ES2428610-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6031050)									
ES2428584-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2428463-001	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: 6031464)									
ES2428610-024	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	9.54	9.48	0.6	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6031460)									
ES2428460-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	2.0	2.9	38.8	No Limit
ES2428610-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (5.0)*	mg/L	30.3	30.6	1.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6031461)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6031461) - continued									
ES2428610-023	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.03	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6034093)									
EN2410139-004	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.02)*	mg/L	1.60	1.80	12.4	0% - 20%
ES2428507-004	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (5.00)*	mg/L	99.0	102	3.4	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6031054)									
ES2428614-001	CZ5a_MW102	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ME2401404-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6031401) - continued									
ES2428614-001	CZ5a_MW102	EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6031401)									
ES2428614-001	CZ5a_MW102	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6031402)									
ES2428614-001	CZ5a_MW102	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6031402)									
ES2428614-001	CZ5a_MW102	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6031402)									

Work Order : ES2428614
Client : EPIC ENVIRONMENTAL
Project : SCL220037.14

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: 6031402) - continued									
ES2428614-001	CZ5a_MW102	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	6	6	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 6030681)									
ES2428394-001	Anonymous	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6028949)									
ES2428352-007	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6028949)									
ES2428352-007	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6028949)									
ES2428352-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6028949) - continued									
ES2428352-007	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP234H: Triazine Herbicides (QC Lot: 6030364)									
ES2428609-002	Anonymous	EP234-1: Ametryn	834-12-8	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Atrazine	1912-24-9	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Prometryn	7287-19-6	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Propazine	139-40-2	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Terbuthylazine	5915-41-3	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Terbutryn	886-50-0	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Cyanazine	21725-46-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP234-1: Simazine	122-34-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP234-1: Cyromazine	66215-27-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2428609-001	Anonymous	EP234-1: Ametryn	834-12-8	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Atrazine	1912-24-9	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Prometryn	7287-19-6	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Propazine	139-40-2	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Terbuthylazine	5915-41-3	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Terbutryn	886-50-0	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP234-1: Cyanazine	21725-46-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP234-1: Simazine	122-34-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP234-1: Cyromazine	66215-27-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP234H: Triazine Herbicides (QC Lot: 6030365)									
ES2428609-001	Anonymous	EP234-1x: Atrazine-desethyl	6190-65-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EP234-1x: Atrazine-desisopropyl	1007-28-9	0.1	µg/L	<0.1	<0.1	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6029012)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6029011)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	106	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6034326)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	93.9	87.0	109
				<10	293 mg/L	95.7	75.2	126
				<10	2410 mg/L	99.6	83.0	124
EA075: Redox Potential (QCLot: 6028330)								
EA075: Redox Potential	----	----	mV	----	234 mV	98.5	96.0	106
				----	300 mV	99.8	97.0	105
				----	86 mV	103	89.0	111
EA075: Redox Potential (QCLot: 6028790)								
EA075: Redox Potential	----	----	mV	----	234 mV	99.0	96.0	106
				----	300 mV	100	97.0	105
				----	86 mV	90.9	89.0	111
ED037P: Alkalinity by PC Titrator (QCLot: 6029013)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	100	81.0	115
				----	20 mg/L	112	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6031052)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.1	82.0	122
				<1	500 mg/L	86.5	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6031051)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	100	80.9	127
				<1	1000 mg/L	89.3	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6029253)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	113	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	109	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	106	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	85.0	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6029255)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	91.2	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.0	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	88.3	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.6	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	87.0	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.4	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.5	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.3	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.4	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 6031524)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.7	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	87.7	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.1	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	87.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.4	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	86.1	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.1	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 6029252)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.9	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6033887)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.5	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 6034816)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	96.9	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6031462)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	95.9	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6031050)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.7	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6031464)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6031460)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	95.9	69.0	123
				<0.1	1 mg/L	115	70.0	123
				<0.1	5 mg/L	98.4	70.0	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6031461)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	95.6	71.3	126
				<0.01	0.442 mg/L	102	71.3	126
				<0.01	1 mg/L	100	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6034093)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	100	71.3	126
				<0.01	0.442 mg/L	111	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6031054)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	109	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6028340)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	86.4	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 6028338)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	80.0	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	77.0	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	81.0	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	76.9	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	82.4	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	78.4	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	80.9	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	80.8	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	78.6	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	85.2	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	78.2	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	82.6	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	81.6	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	81.7	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	81.2	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	82.1	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	79.8	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	79.9	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	80.9	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	84.4	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	81.2	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6028338)								

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6028338) - continued								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	77.3	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	77.3	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.0	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	78.9	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	79.1	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	81.7	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	79.5	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	80.1	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	79.8	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	80.6	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	76.1	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	80.5	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	82.3	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	81.4	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	85.2	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	80.3	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	78.7	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	81.7	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	97.4	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6031401)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	95.2	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	97.9	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	94.6	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	96.0	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	97.6	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.8	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	95.2	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.7	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	102	65.0	123
EP074B: Oxygenated Compounds (QCLot: 6031401)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	93.4	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	97.6	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	89.6	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	92.9	65.0	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 6031401)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	82.1	72.8	127
EP074D: Fumigants (QCLot: 6031401)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	91.8	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	89.8	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	94.8	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	92.3	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	91.0	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 6031401)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	62.6	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	78.3	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	80.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	84.1	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	87.7	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	87.5	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	94.7	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	86.2	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.2	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	92.2	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	92.9	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	90.5	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	93.2	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.3	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	92.3	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	93.6	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	89.2	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	94.5	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	95.4	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	95.4	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	92.9	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	91.8	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	92.2	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	97.5	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	87.7	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.1	71.8	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6031401) - continued								
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	90.6	66.4	136
EP074F: Halogenated Aromatic Compounds (QCLot: 6031401)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	95.8	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	92.9	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	96.8	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	98.9	73.0	119
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	104	67.0	123
EP074G: Trihalomethanes (QCLot: 6031401)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	92.0	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	89.4	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	89.2	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	89.8	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6028339)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	69.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	73.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	73.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	91.1	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	111	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	109	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	72.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	81.9	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	81.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	92.3	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	84.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	78.1	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	82.1	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.0	59.1	118
EP075A: Phenolic Compounds (QCLot: 6028341)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	30.8	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	62.6	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	57.0	50.0	94.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (QCLot: 6028341) - continued								
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	54.0	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	73.3	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	69.6	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	70.3	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	72.1	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	68.4	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	74.3	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	74.2	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	55.8	12.8	95.0
EP075C: Phthalate Esters (QCLot: 6028341)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	83.7	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	86.9	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	87.0	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	87.7	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	92.7	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	85.9	62.1	115
EP075D: Nitrosamines (QCLot: 6028341)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	51.6	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	67.5	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	53.0	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	53.6	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	76.8	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	74.3	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	69.2	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	81.4	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	48.2	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 6028341)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	# 25.8	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	75.2	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	69.2	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	78.8	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	82.9	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	80.5	59.5	109

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075E: Nitroaromatics and Ketones (QCLot: 6028341) - continued								
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	94.4	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	63.3	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	84.7	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	81.3	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	71.8	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	71.5	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	95.4	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	83.0	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	86.8	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	86.6	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	91.2	57.7	110
EP075F: Haloethers (QCLot: 6028341)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	73.7	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	77.1	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	80.1	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	83.2	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 6028341)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	64.9	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	64.6	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	65.3	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	63.8	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	68.3	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	65.3	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	67.6	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	63.0	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	78.7	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	84.8	65.7	110
EP075H: Anilines and Benzidines (QCLot: 6028341)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	58.3	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	76.3	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	73.7	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	75.2	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	79.5	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	74.6	48.9	99.5

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075H: Anilines and Benzidines (QCLot: 6028341) - continued								
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	85.8	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	82.6	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 6028341)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	86.2	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	86.0	53.0	107
EP075: gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	10 µg/L	81.1	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	85.2	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	87.9	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	87.7	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	89.8	50.0	118
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	91.1	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	84.8	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	91.1	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	89.5	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	89.3	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	91.4	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	96.8	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	85.4	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 6028341)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	80.9	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	76.8	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	88.7	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	92.0	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	100	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	92.3	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	87.7	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	85.6	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	71.0	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	88.0	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	94.0	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6028337)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6028337) - continued								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	66.1	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	71.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	76.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6031402)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	82.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6028337)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	71.5	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	76.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	53.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6031402)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	78.0	75.0	127
EP080: BTEXN (QCLot: 6031402)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.1	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	114	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	121	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	121	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	121	75.5	124
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6030681)								
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	106	82.0	136
EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	100 µg/L	101	65.0	147
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	104	83.0	137
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	103	75.0	143
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	105	76.0	140
EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	100 µg/L	105	76.0	144
EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	100 µg/L	107	77.0	139
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	106	77.0	141
EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	100 µg/L	102	75.0	143
EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	100 µg/L	107	78.0	140
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	103	69.2	139
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	101	70.0	144
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	100	70.0	145
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	102	77.0	145

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6028949)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	80.7	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	78.4	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	87.9	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6028949)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	94.1	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	92.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	92.1	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.8	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6028949)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	91.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	96.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	106	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	82.4	71.4	144
EP234H: Triazine Herbicides (QCLot: 6030364)								
EP234-1: Ametryn	834-12-8	0.01	µg/L	<0.01	0.1 µg/L	100	81.0	125
EP234-1: Atrazine	1912-24-9	0.01	µg/L	<0.01	0.1 µg/L	109	75.0	123
EP234-1: Cyanazine	21725-46-2	0.02	µg/L	<0.02	0.2 µg/L	109	76.0	130
EP234-1: Cyromazine	66215-27-8	0.05	µg/L	<0.05	0.5 µg/L	99.6	79.0	123
EP234-1: Prometryn	7287-19-6	0.01	µg/L	<0.01	0.1 µg/L	100	81.0	123
EP234-1: Propazine	139-40-2	0.01	µg/L	<0.01	0.1 µg/L	102	84.0	124
EP234-1: Simazine	122-34-9	0.02	µg/L	<0.02	0.2 µg/L	98.9	73.0	127
EP234-1: Terbuthylazine	5915-41-3	0.01	µg/L	<0.01	0.1 µg/L	98.9	79.0	125
EP234-1: Terbutryn	886-50-0	0.01	µg/L	<0.01	0.1 µg/L	108	76.0	130
EP234H: Triazine Herbicides (QCLot: 6030365)								
EP234-1x: Atrazine-desethyl	6190-65-4	0.1	µg/L	<0.1	2.5 µg/L	101	70.0	130
EP234-1x: Atrazine-desisopropyl	1007-28-9	0.1	µg/L	<0.1	2.5 µg/L	101	70.0	130

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6031052)							
ES2428584-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	105	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6031051)							
ES2428463-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	87.2	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6029255)							
ES2428599-009	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	95.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	89.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	91.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.4	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	91.3	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	84.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	91.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	92.4	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 6031524)							
ES2428584-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.7	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	87.4	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	95.1	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	87.9	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	93.4	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	87.5	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	88.7	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6029252)							
EN2409995-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	104	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6033887)							
EN2409994-021	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	108	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6034816)							
ES2428614-001	CZ5a_MW102	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	101	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6031462)							
ES2428460-003	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	113	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6031050)							
ES2428463-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	110	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6031464)							
ES2428610-024	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6031460)							
ES2428460-009	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6031461)							
ES2428610-024	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6034093)							
EN2410139-005	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	95.8	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6031054)							
ES2428614-001	CZ5a_MW102	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	117	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 6031401)							
ES2428614-001	CZ5a_MW102	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	104	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	97.2	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 6031401)							
ES2428614-001	CZ5a_MW102	EP074: Chlorobenzene	108-90-7	25 µg/L	94.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6031402)							
ES2428614-001	CZ5a_MW102	EP080: C6 - C9 Fraction	----	325 µg/L	93.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6031402)							
ES2428614-001	CZ5a_MW102	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	87.7	70.0	130
EP080: BTEXN (QCLot: 6031402)							
ES2428614-001	CZ5a_MW102	EP080: Benzene	71-43-2	25 µg/L	89.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	111	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	117	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	127	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	124	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	100	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6030681)							
ES2428394-001	Anonymous	EP202-SL: Mecoprop	93-65-2	100 µg/L	114	75.0	143
		EP202-SL: MCPA	94-74-6	100 µg/L	111	76.0	140
		EP202-SL: 2.4-D	94-75-7	100 µg/L	113	77.0	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	112	77.0	141
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	111	78.0	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	# 32.7	70.0	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 20.8	70.0	145
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6028949)							
ES2428352-007	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	85.6	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	83.8	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	87.7	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6028949)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6028949) - continued							
ES2428352-007	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	93.4	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.3	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	92.5	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	94.5	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6028949)							
ES2428352-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	108	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	95.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	105	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	87.8	71.4	144
EP234H: Triazine Herbicides (QCLot: 6030364)							
ES2428609-001	Anonymous	EP234-1: Ametryn	834-12-8	0.1 µg/L	87.5	74.0	126
		EP234-1: Atrazine	1912-24-9	0.1 µg/L	106	68.0	130
		EP234-1: Cyanazine	21725-46-2	0.2 µg/L	105	72.0	126
		EP234-1: Cyromazine	66215-27-8	0.5 µg/L	83.3	69.0	137
		EP234-1: Prometryn	7287-19-6	0.1 µg/L	87.5	72.0	130
		EP234-1: Propazine	139-40-2	0.1 µg/L	87.6	67.0	133
		EP234-1: Simazine	122-34-9	0.2 µg/L	96.3	70.0	132
		EP234-1: Terbuthylazine	5915-41-3	0.1 µg/L	100	70.0	126
		EP234-1: Terbutryn	886-50-0	0.1 µg/L	98.4	71.0	129
EP234H: Triazine Herbicides (QCLot: 6030365)							
ES2428609-001	Anonymous	EP234-1x: Atrazine-desethyl	6190-65-4	2.5 µg/L	90.5	70.0	130
		EP234-1x: Atrazine-desisopropyl	1007-28-9	2.5 µg/L	87.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2428614**	Page	: 1 of 15
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.14	Date Samples Received	: 02-Sep-2024
Site	: CLYDE ZONE 5a RAP	Issue Date	: 09-Sep-2024
Sampler	: JL	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 6

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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
Laboratory Control Spike (LCS) Recoveries							
EP075E: Nitroaromatics and Ketones	QC-6028341-002	----	**2-Picoline**	109-06-8	25.8 %	41.0-109%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2428610--024	Anonymous	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	ES2428460--009	Anonymous	**Total Kjeldahl Nitrogen as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	ES2428610--024	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP202A: Phenoxyacetic Acid Herbicides by LCMS	ES2428394--001	Anonymous	**Picloram**	1918-02-1	32.7 %	70.0-144%	**Recovery less than lower data quality objective**
EP202A: Phenoxyacetic Acid Herbicides by LCMS	ES2428394--001	Anonymous	**Clopyralid**	1702-17-6	20.8 %	70.0-145%	**Recovery less than lower data quality objective**

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***
EP025: Oxygen - Dissolved (DO)						
Clear Plastic Bottle - Natural						
CZ5a_MW103	----	----	----	03-Sep-2024	02-Sep-2024	**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	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	7.69	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Matrix Spikes (MS) - Continued						
Semivolatile Organic Compounds	EP075	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**02-Sep-2024**	02-Sep-2024	✓
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**02-Sep-2024**	30-Sep-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**04-Sep-2024**	09-Sep-2024	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	30-Sep-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**02-Sep-2024**	02-Sep-2024	✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**02-Sep-2024**	16-Sep-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	30-Sep-2024	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	30-Sep-2024	✓

Work Order : ES2428614
Client : EPIC ENVIRONMENTAL
Project : SCL220037.14

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*
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	30-Sep-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ5a_MW102, CZ5a_MW103, QC100	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	01-Mar-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS07	**02-Sep-2024**	**03-Sep-2024**	01-Mar-2025	✓	**03-Sep-2024**	01-Mar-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ5a_MW102, CZ5a_MW103, QC100	**02-Sep-2024**	**----**	----	----	**05-Sep-2024**	30-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS07	**02-Sep-2024**	**----**	----	----	**06-Sep-2024**	30-Sep-2024	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**04-Sep-2024**	30-Sep-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	30-Sep-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	04-Sep-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	30-Sep-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	30-Sep-2024	✓	**04-Sep-2024**	30-Sep-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	30-Sep-2024	✓	**04-Sep-2024**	30-Sep-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC100	**02-Sep-2024**	**04-Sep-2024**	30-Sep-2024	✓	**04-Sep-2024**	30-Sep-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	04-Sep-2024	✓

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) CZ5a_MW102	**02-Sep-2024**	**----**	----	----	**02-Sep-2024**	02-Sep-2024	✓
Clear Plastic Bottle - Natural (EP025) CZ5a_MW103	**02-Sep-2024**	**----**	----	----	**03-Sep-2024**	02-Sep-2024	✗
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) CZ5a_MW102, CZ5a_MW103, QC100	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**05-Sep-2024**	13-Oct-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
Amber Glass Bottle - Unpreserved (EP068) QC100	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**05-Sep-2024**	13-Oct-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
Amber Glass Bottle - Unpreserved (EP068) QC100	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**05-Sep-2024**	13-Oct-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) QC100	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC100	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC100	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC100	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102, CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC100		**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC100		**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) QC100		**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Clear glass VOC vial - HCl (EP074) CZ5a_MW102,	CZ5a_MW103	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075I: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP075J: Organophosphorus Pesticides								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	13-Oct-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) CZ5a_MW102, QC100,	CZ5a_MW103, RS07	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**05-Sep-2024**	13-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC100		**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB05		**26-Aug-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	09-Sep-2024	✓
Clear glass VOC vial - HCl (EP080) CZ5a_MW102, RS07	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) CZ5a_MW102, QC100,	CZ5a_MW103, RS07	**02-Sep-2024**	**03-Sep-2024**	09-Sep-2024	✓	**05-Sep-2024**	13-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC100		**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB05		**26-Aug-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	09-Sep-2024	✓
Clear glass VOC vial - HCl (EP080) CZ5a_MW102, RS07	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) QC100		**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TS05		**22-Aug-2024**	**03-Sep-2024**	05-Sep-2024	✓	**04-Sep-2024**	05-Sep-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB05		**26-Aug-2024**	**03-Sep-2024**	09-Sep-2024	✓	**04-Sep-2024**	09-Sep-2024	✓
Clear glass VOC vial - HCl (EP080) CZ5a_MW102, RS07	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	16-Sep-2024	✓	**04-Sep-2024**	16-Sep-2024	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Amber Glass Bottle - Unpreserved (EP202-SL) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	----	----	----	**03-Sep-2024**	09-Sep-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	01-Mar-2025	✓	**05-Sep-2024**	01-Mar-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	01-Mar-2025	✓	**05-Sep-2024**	01-Mar-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	01-Mar-2025	✓	**05-Sep-2024**	01-Mar-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	**03-Sep-2024**	01-Mar-2025	✓	**05-Sep-2024**	01-Mar-2025	✓
EP234H: Triazine Herbicides								
Amber Glass Bottle - Unpreserved (EP234-1x) CZ5a_MW102, QC100	CZ5a_MW103,	**02-Sep-2024**	----	----	----	**03-Sep-2024**	09-Sep-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	31	**12.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	3	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	3	**66.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	31	**9.68**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	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 Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Evaluation	Quality Control Specification
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	6	4	**150.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	38	**13.16**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	12	**25.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	6	22	**27.27**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	6	**16.67**	**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*	
Method Blanks (MB) - Continued							
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	3	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	7	**14.29**	**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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of \`filterable\` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate forms highly-coloured ferric thiocynate 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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)
Ammonium as N	EK055G-NH4	WATER	Ammonium in the sample is reported as the ionised / unionised fractions by the use of a nomograph and the initial pH and Temperature. Ammonia is determined by direct colorimetry by Discrete Analyser according to APHA 4500-NH3 G. 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 seperately 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)

Analytical Methods	Method	Matrix	Method Descriptions
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 othophosphate 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)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)
Volatile Organic Compounds	EP074	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. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with 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)
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In house: LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	WATER	In house: LC-MSMS, direct injection. A sample is filtered and injected directly onto the LC-MSMS. Analysis is by LC/MSMS, ESI Positive Mode.

Analytical Methods	Method	Matrix	Method Descriptions
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	WATER	In house: LC-MSMS, direct injection. A sample is filtered and injected directly onto the LC-MSMS. Analysis is by LC/MSMS, ESI Positive Mode.

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)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. 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.

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Envirolab.

Chain of Custody Record

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page of		Sample Disposal After:	
Number of Eskies:			

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid: 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: **TRH C6-C10/BTEXN**	Rinsate: **TRH C6-C40**	Rinsate: **8 metals**
1	QC02														✓	✓	✓			✓				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE DATE 7/8	Received By: NAME SIGNATURE DATE	Custody Seals Intact Y N Samples Received Chilled Y N Method of Shipment

NOTES: Bottles supplied for As speciation to be placed on-HOLD and NOT analysed.

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 358929

Date Received: 12/8/24
Time Received: 1300
Received By: CN
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Epic Environmental Pty Ltd ABN 54 169 579 275
Level 6, 193 North Quay, Brisbane QLD 4000

web www.epicenvironmental.com.au
email labs@epicenvironmental.com.au

Subcon / Forward Lab / Split WO
Lab / Analysis: Envirolab
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC Fwd
WO No: ES2426006
Attach By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2426006

Telephone : + 61-2-8784 8555

HT

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Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydne
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 2		Sample Disposal After:	
Number of Eskies:	2		

LAB ID	Sample ID	Date/Time	Matrix			water/liquid: 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH/OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, **Total P**, Reactive P, **total oxidised N**	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	QC01	6/8	W					2	1		2				✓	✓	✓			✓				
*	QC02							2	1		2			* Send to Envirolab										
2	CZ1_BH13_W							2	1		2			✓	✓	✓	✓	✓	✓	✓				
3	SMW_WTP_BH25_S							2	1		2			✓	✓	✓	✓	✓	✓	✓				
4	SMW_WTP_BH25_W							2	1		2			✓	✓	✓	✓	✓	✓	✓				
5	CZ5_MW01							2	1		2			✓	✓	✓	✓	✓	✓	✓				
~~6~~	~~SMW_ENV[illegible]~~																							
7 6	RS01																						✓	✓
8 7	TB01																					✓		
9 8	TS01																					✓		
10 9	CZ4e_MW03_W	7/8												✓	✓	✓	✓	✓	✓	✓				
11 10	CZ4e_MW02_W													✓	✓	✓	✓	✓	✓	✓				
12 11	SMW_ENV145_W													✓	✓	✓	✓	✓	✓	✓				
13 12	SMW_WTP_BH13_W													✓	✓	✓	✓	✓	✓	✓				
~~14 13~~	~~SMW_BH010_W~~																							
13 15 14	SMW-ENV039-W													✓	✓	✓	✓	✓	✓	✓				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra	SIGNATURE	DATE 7/8	
Received By: NAME	SIGNATURE Fmo	DATE 8/8/24 12:12	
Custody Seals Intact	Y	N	
Samples Received Chilled	Y	N	
Method of Shipment			

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

358929
12/8/24
O.W.

epic ENVIRONMENTAL page

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 2 of 2		Sample Disposal After:	
Number of Eskies: 2.			

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, Total P, Reactive P, total oxidised N	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
				CONTAINER TYPE & PRESERVATIVE: water/liquid																				
14	RS02	7/8	W																				/	/
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE

Received By: Fam 8/8/24 12:15
NAME SIGNATURE DATE

Custody Seals Intact Y N
Samples Received Chilled Y N
Method of Shipment

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

358929
12/8/24
U.W

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	N Chandra, Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.10
Envirolab Reference	358929
Date Sample Received	12/08/2024
Date Instructions Received	12/08/2024
Date Results Expected to be Reported	19/08/2024

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	Hexavalent Chromium, Cr6+ (dissolved)	Trivalent Chromium, Cr3+	PFAS in Waters Short
QC02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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

CERTIFICATE OF ANALYSIS 358929

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	N Chandra, Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SCL220037.10**
Number of Samples	1 Water
Date samples received	12/08/2024
Date completed instructions received	12/08/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

Report Details

Date results requested by	19/08/2024
Date of Issue	19/08/2024

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

Results Approved By
Amanda Chui, LC/Air Toxics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jenny He, Senior Chemist
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VOCs in water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date Extracted	-	16/08/2024
Date Analysed	-	16/08/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	96

vTRH(C6-C10)/BTEXN in Water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	16/08/2024
Date analysed	-	16/08/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	96

svTRH (C10-C40) in Water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	101

PAHs in Water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	71

Organochlorine Pesticides in Water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	68

OP Pesticides in Water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	68

PCBs in Water		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date extracted	-	14/08/2024
Date analysed	-	15/08/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	90

HM in water - dissolved		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date prepared	-	14/08/2024
Date analysed	-	14/08/2024
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	12
Zinc-Dissolved	µg/L	14
Iron-Dissolved	µg/L	110
Manganese-Dissolved	µg/L	180

Metals in Water - Dissolved		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date digested	-	13/08/2024
Date analysed	-	13/08/2024
Phosphorus - Dissolved	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date prepared	-	13/08/2024
Date analysed	-	13/08/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

PFAS in Waters Short		
Our Reference		358929-1
Your Reference	UNITS	QC02
Date Sampled		06/08/2024
Type of sample		Water
Date prepared	-	13/08/2024
Date analysed	-	13/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.16
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	97
Surrogate $^{13}C_2$ *PFOA*	%	96
Extracted ISTD $^{18}O_2$ *PFHxS*	%	99
Extracted ISTD $^{13}C_4$ *PFOS*	%	92
Extracted ISTD $^{13}C_4$ *PFOA*	%	100
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	86
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	95
Total Positive PFHxS & PFOS	µg/L	0.16
Total Positive PFOA & PFOS	µg/L	<0.01
Total Positive PFAS	µg/L	0.16

Method ID	Methodology Summary
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date Extracted	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Date Analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	94	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	105	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	111	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	105	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	1	101	103	2	102	[NT]
Surrogate Toluene-d8	%		Org-023	106	1	100	100	0	107	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	1	96	96	0	105	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	105	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	105	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	105	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	1	101	103	2	102	[NT]
Surrogate Toluene-d8	%		Org-023	106	1	100	100	0	107	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	1	96	96	0	105	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	115	[NT]	[NT]	[NT]	[NT]	126	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	86	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	92	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	81	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	99	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	92	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	85	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	73	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: OP Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	81	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	73	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	75	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	62	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	85	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	73	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	91	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	[NT]	[NT]	[NT]	[NT]	112	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	119	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			13/08/2024	[NT]	[NT]	[NT]	[NT]	13/08/2024	[NT]
Date analysed	-			13/08/2024	[NT]	[NT]	[NT]	[NT]	13/08/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Date analysed	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	98	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Date analysed	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	0.16	0.16	0	111	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	108	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	105	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	102	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	101	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	96	1	97	96	1	99	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	97	1	96	97	1	97	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	108	1	99	95	4	100	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	105	1	92	91	1	100	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	116	1	100	96	4	100	[NT]
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	113	1	86	82	5	109	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	136	1	95	95	0	119	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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Chain of Custody Record

Project No:	SCL220037.10
Project/Site:	SCL220037.10
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page of	
Number of Eskies:	

Lab:	~~ALS Sydney~~ Envirolab
Lab Quote No:	ES23EPIENV0004
Lab Batch No:	
Date Results Required:	**Standard TAT (5 days)**
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, Total P, Reactive P, total oxidised N	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	~~Rs~~ QC04	12/8	W												/	/	/			/				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:
NAME Natalie Chandra SIGNATURE [signature] DATE 13/8

Received By:
NAME SIGNATURE DATE

Custody Seals Intact Y N
Samples Received Chilled Y N
Method of Shipment

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

Epic Environmental Pty Ltd ABN 54 169 579 275
Level 6, 193 North Quay, Brisbane QLD 4000
web www.epicenvironmental.com.au
email labs@epicenvironmental.com.au

Rec: [signature] 13/8/24 1408

Relinq: [signature] 13/8/24 1408

#359175
14/8 1500
CR

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.10
Envirolab Reference	359175
Date Sample Received	14/08/2024
Date Instructions Received	14/08/2024
Date Results Expected to be Reported	21/08/2024

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

Comments
Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
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Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
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Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	Hexavalent Chromium, Cr6+ (dissolved)	Trivalent Chromium, Cr3+	PFAS in Waters Short
QC04	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 359175

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jenny Law, Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SCL220037.10**
Number of Samples	1 Water
Date samples received	14/08/2024
Date completed instructions received	14/08/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

Report Details

Date results requested by	21/08/2024
Date of Issue	21/08/2024

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Results Approved By
Amanda Chui, LC/Air Toxics Supervisor
Jack Wallis, Chemist (FAS)
Jenny He, Senior Chemist
Loren Bardwell, Development Chemist
Tabitha Roberts, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date Extracted	-	20/08/2024
Date Analysed	-	21/08/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Bromoform	μg/L	<1
m+p-xylene	μg/L	<2
Styrene	μg/L	<1
1,1,2,2-tetrachloroethane	μg/L	<1
o-xylene	μg/L	<1
1,2,3-trichloropropane	μg/L	<1
Isopropylbenzene	μg/L	<1
Bromobenzene	μg/L	<1
n-propyl benzene	μg/L	<1
2-chlorotoluene	μg/L	<1
4-chlorotoluene	μg/L	<1
1,3,5-trimethyl benzene	μg/L	<1
Tert-butyl benzene	μg/L	<1
1,2,4-trimethyl benzene	μg/L	<1
1,3-dichlorobenzene	μg/L	<1
Sec-butyl benzene	μg/L	<1
1,4-dichlorobenzene	μg/L	<1
4-isopropyl toluene	μg/L	<1
1,2-dichlorobenzene	μg/L	<1
n-butyl benzene	μg/L	<1
1,2-dibromo-3-chloropropane	μg/L	<1
1,2,4-trichlorobenzene	μg/L	<1
Hexachlorobutadiene	μg/L	<1
1,2,3-trichlorobenzene	μg/L	<1
Surrogate Dibromofluoromethane	%	106
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	94

vTRH(C6-C10)/BTEXN in Water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date extracted	-	20/08/2024
Date analysed	-	21/08/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	106
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	94

svTRH (C10-C40) in Water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date extracted	-	19/08/2024
Date analysed	-	20/08/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	84

PAHs in Water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date extracted	-	19/08/2024
Date analysed	-	21/08/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	102

Organochlorine Pesticides in Water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date extracted	-	19/08/2024
Date analysed	-	21/08/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	107

OP Pesticides in Water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date extracted	-	19/08/2024
Date analysed	-	21/08/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	107

PCBs in Water		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date extracted	-	19/08/2024
Date analysed	-	21/08/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	98

HM in water - dissolved		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date prepared	-	16/08/2024
Date analysed	-	16/08/2024
Arsenic-Dissolved	μg/L	1
Cadmium-Dissolved	μg/L	<0.1
Chromium-Dissolved	μg/L	1
Copper-Dissolved	μg/L	4
Lead-Dissolved	μg/L	2
Mercury-Dissolved	μg/L	<0.05
Nickel-Dissolved	μg/L	3
Zinc-Dissolved	μg/L	13
Iron-Dissolved	μg/L	1,600
Manganese-Dissolved	μg/L	27

Metals in Water - Dissolved		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date digested	-	19/08/2024
Date analysed	-	20/08/2024
Phosphorus - Dissolved	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date prepared	-	15/08/2024
Date analysed	-	15/08/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

PFAS in Waters Short		
Our Reference		359175-1
Your Reference	UNITS	QC04
Date Sampled		12/08/2024
Type of sample		Water
Date prepared	-	15/08/2024
Date analysed	-	15/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.02
Perfluorooctanoic acid PFOA	µg/L	0.08
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	100
Surrogate $^{13}C_2$ *PFOA*	%	102
Extracted ISTD $^{18}O_2$ *PFHxS*	%	79
Extracted ISTD $^{13}C_4$ *PFOS*	%	75
Extracted ISTD $^{13}C_4$ *PFOA*	%	86
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	94
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	104
Total Positive PFHxS & PFOS	µg/L	0.04
Total Positive PFOA & PFOS	µg/L	0.10
Total Positive PFAS	µg/L	0.12

Method ID	Methodology Summary
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date Extracted	-			20/08/2024	[NT]	[NT]	[NT]	[NT]	20/08/2024	[NT]
Date Analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Dibromomethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	[NT]	[NT]	[NT]	[NT]	109	[NT]
Surrogate Toluene-d8	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			20/08/2024	[NT]	[NT]	[NT]	[NT]	20/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	97	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	[NT]	[NT]	[NT]	[NT]	109	[NT]
Surrogate Toluene-d8	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
Date analysed	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	87	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	79	[NT]	[NT]	[NT]	[NT]	114	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	109	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	103	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	111	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	119	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	75	[NT]	[NT]	[NT]	[NT]	130	[NT]

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	92	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	126	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	127	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	75	[NT]	[NT]	[NT]	[NT]	130	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	72	[NT]	[NT]	[NT]	[NT]	126	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			16/08/2024	[NT]	[NT]	[NT]	[NT]	16/08/2024	[NT]
Date analysed	-			16/08/2024	[NT]	[NT]	[NT]	[NT]	16/08/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	91	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	100	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			19/08/2024	[NT]	[NT]	[NT]	[NT]	19/08/2024	[NT]
Date analysed	-			20/08/2024	[NT]	[NT]	[NT]	[NT]	20/08/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	89	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	117	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	81	[NT]	[NT]	[NT]	[NT]	80	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	77	[NT]	[NT]	[NT]	[NT]	73	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	84	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	106	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

epic ENVIRONMENTAL

Chain of Custody Record

Envirolab.

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~
Project/Site:	SCL220037.10	Lab Quote No:	~~E323EPIENV0004~~
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page	2 of 2	Sample Disposal After:	
Number of Eskies:	1		

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Mn, Fe, P)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total N, NO2, NO3, NH3, Total P, Reactive P, total oxidised N	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	8 metals
1	QC06	19/8	W												✓	✓	✓			✓				
													TOTALS	0	0	0	0	0	0	0	0	0	0	0

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph (02) 9910 6200
Job No: 359802
Date Received: 21/8/24
Time Received: 1400
Received By: CW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE 20/8

Received By:
NAME SIGNATURE DATE

	Y	N
Custody Seals Intact	Y	N
Samples Received Chilled	Y	N
Method of Shipment		

NOTES: Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

Epic Environmental Pty Ltd ABN 54 169 579 275
Level 6, 193 North Quay, Brisbane QLD 4000

web www.epicenvironmental.com.au
email labs@epicenvironmental.com.au

Relinq. [illegible]
20/8/24
1739

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.10
Envirolab Reference	359802
Date Sample Received	22/08/2024
Date Instructions Received	22/08/2024
Date Results Expected to be Reported	29/08/2024

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	2
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	Hexavalent Chromium, Cr6+ (dissolved)	Trivalent Chromium, Cr3+	PFAS in Waters Short
QC06	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
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CERTIFICATE OF ANALYSIS 359802

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SCL220037.10**
Number of Samples	1 Water
Date samples received	22/08/2024
Date completed instructions received	22/08/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

Report Details

Date results requested by	29/08/2024
Date of Issue	29/08/2024

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

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

Results Approved By
Amanda Chui, LC/Air Toxics Supervisor
Giovanni Agosti, Group Technical Manager
Jenny He, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date Extracted	-	23/08/2024
Date Analysed	-	23/08/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	98
Surrogate Toluene-d8	%	101
Surrogate 4-Bromofluorobenzene	%	106

vTRH(C6-C10)/BTEXN in Water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date extracted	-	23/08/2024
Date analysed	-	23/08/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	98
Surrogate Toluene-d8	%	101
Surrogate 4-Bromofluorobenzene	%	106

svTRH (C10-C40) in Water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date extracted	-	27/08/2024
Date analysed	-	27/08/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	92

PAHs in Water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date extracted	-	27/08/2024
Date analysed	-	28/08/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	84

Organochlorine Pesticides in Water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date extracted	-	27/08/2024
Date analysed	-	28/08/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	103

OP Pesticides in Water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date extracted	-	27/08/2024
Date analysed	-	28/08/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	103

PCBs in Water		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date extracted	-	27/08/2024
Date analysed	-	28/08/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	86

HM in water - dissolved		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date prepared	-	26/08/2024
Date analysed	-	26/08/2024
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	21
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	3
Iron-Dissolved	µg/L	10
Manganese-Dissolved	µg/L	100

Metals in Water - Dissolved		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date digested	-	26/08/2024
Date analysed	-	26/08/2024
Phosphorus - Dissolved	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date prepared	-	23/08/2024
Date analysed	-	23/08/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

PFAS in Waters Short		
Our Reference		359802-1
Your Reference	UNITS	QC06
Date Sampled		19/08/2024
Type of sample		Water
Date prepared	-	28/08/2024
Date analysed	-	28/08/2024
Perfluorohexanesulfonic acid - PFHxS	μg/L	0.01
Perfluorooctanesulfonic acid PFOS	μg/L	0.02
Perfluorooctanoic acid PFOA	μg/L	<0.01
6:2 FTS	μg/L	<0.01
8:2 FTS	μg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	95
Surrogate $^{13}C_2$ *PFOA*	%	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	101
Extracted ISTD $^{13}C_4$ *PFOS*	%	105
Extracted ISTD $^{13}C_4$ *PFOA*	%	102
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	111
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	107
Total Positive PFHxS & PFOS	μg/L	0.03
Total Positive PFOA & PFOS	μg/L	0.02
Total Positive PFAS	μg/L	0.03

Method ID	Methodology Summary
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date Extracted	-			23/08/2024	[NT]	[NT]	[NT]	[NT]	23/08/2024	[NT]
Date Analysed	-			23/08/2024	[NT]	[NT]	[NT]	[NT]	23/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Dibromomethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	120	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			23/08/2024	[NT]	[NT]	[NT]	[NT]	23/08/2024	[NT]
Date analysed	-			23/08/2024	[NT]	[NT]	[NT]	[NT]	23/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	115	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	115	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			27/08/2024	[NT]	[NT]	[NT]	[NT]	27/08/2024	[NT]
Date analysed	-			27/08/2024	[NT]	[NT]	[NT]	[NT]	27/08/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	94	[NT]	[NT]	[NT]	[NT]	87	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			27/08/2024	[NT]	[NT]	[NT]	[NT]	27/08/2024	[NT]
Date analysed	-			28/08/2024	[NT]	[NT]	[NT]	[NT]	28/08/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	102	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			27/08/2024	[NT]	[NT]	[NT]	[NT]	27/08/2024	[NT]
Date analysed	-			28/08/2024	[NT]	[NT]	[NT]	[NT]	28/08/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	107	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	103	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	111	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	99	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	109	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	93	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	114	[NT]	[NT]	[NT]	[NT]	133	[NT]

QUALITY CONTROL: OP Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			27/08/2024	[NT]	[NT]	[NT]	[NT]	27/08/2024	[NT]
Date analysed	-			28/08/2024	[NT]	[NT]	[NT]	[NT]	28/08/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	103	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	91	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	92	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	93	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	114	[NT]	[NT]	[NT]	[NT]	133	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			27/08/2024	[NT]	[NT]	[NT]	[NT]	27/08/2024	[NT]
Date analysed	-			28/08/2024	[NT]	[NT]	[NT]	[NT]	28/08/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	124	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	102	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			26/08/2024	[NT]	[NT]	[NT]	[NT]	26/08/2024	[NT]
Date analysed	-			26/08/2024	[NT]	[NT]	[NT]	[NT]	26/08/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			26/08/2024	[NT]	[NT]	[NT]	[NT]	26/08/2024	[NT]
Date analysed	-			26/08/2024	[NT]	[NT]	[NT]	[NT]	26/08/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			23/08/2024	[NT]	[NT]	[NT]	[NT]	23/08/2024	[NT]
Date analysed	-			23/08/2024	[NT]	[NT]	[NT]	[NT]	23/08/2024	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	98	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/08/2024	1	28/08/2024	28/08/2024		28/08/2024	[NT]
Date analysed	-			28/08/2024	1	28/08/2024	28/08/2024		28/08/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	0.01	0.01	0	105	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	0.02	0.02	0	103	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	104	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	99	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	102	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	96	1	95	91	4	95	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	100	1	98	99	1	101	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	102	1	101	102	1	104	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	103	1	105	108	3	107	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	100	1	102	103	1	104	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	102	1	111	109	2	107	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	95	1	107	104	3	93	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Relinquished By / Date: QC200
Relinquished By / Date:
Courier: Envirolab.

epic ENVIRONMENTAL

* Send to Envirolab - QC200
see COC page 2

Chain of Custody Record

Project No:	SCL220037.14	Lab:	ALS Sydney
Project/Site:	SCL220037.14 - Clyde Zone 5a RAP	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	JL	Lab Batch No:	
Phone / Email:	0447 403 720	Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 2		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE – water/liquid: 60 mL Clear Plastic Bottle - Nitric Acid; Filtered; 60 mL Clear Plastic Bottle - NaOH Filtered; 40 mL Amber VOC Vial - Sulfuric Acid; 100 mL Amber Glass Bottle - Unpreserved; 500 mL Clear Plastic Bottle - Natural; 20 mL HDPE (no PTFE); 60 mL Clear Plastic Bottle - Sulfuric Acid; 60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)

LAB ID	Sample ID	Date/Time	Matrix	Container type & preservative	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals: Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Chlorinated herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major Ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
	~~CZ5a_MW101~~				~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				
1	CZ5a_MW102	2/9/24	W	FULL SUITE	X	X	X	X	X	X	X				
2	CZ5a_MW103	2/9/24	W	FULL SUITE		X	X	X	X	X					
3	QC100	"	"			X	X	X							
*	QC200	"	"			X	X	X							
4	RS07	"	"											X	X
5	TB05	260824											X		
6	TS05	220824											X		
				TOTALS	2	5	5	5	3	3	2	0	2	1	1

HT

Relinquished By: NAME: JENNY LAW (Natalie Chandra)	SIGNATURE:	DATE: 2/9/24	Received By: NAME: FAD.	SIGNATURE:	DATE: 2/9/24 12:32

Custody Seals Intact Y N
Samples Received Chilled Y N
Method of Shipment

NOTES:
Bottles supplied for As speciation to be placed **on HOLD and NOT analysed.**
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons: TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X2068)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

Epic Environmental Pty Ltd ABN 54 169 579 275

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 360800
Date Received: 3/9/24
Time Received: 1420
Received By: MR
Temp: Cool/Ambient
Cooling: ~~Ice~~/Icepack
Security: ~~Intact~~/Broken/None

Environmental Division
Sydney
Work Order Reference
ES2428614

Telephone : + 61-2-8784 8555

www.epicenvironmental.com.au
labs@epicenvironmental.com.au

epic ENVIRONMENTAL

SEND TO ENIROLAB QC200

Chain of Custody Record

Project No:	SCL220037.14
Project/Site:	SCL220037.14 - Clyde Zone 5a RAP
Sampled By:	JL
Phone / Email:	0447 403 720
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page	2 of 2.
Number of Eskies:	1

Lab:	ALS Sydney
Lab Quote No:	ES24EPIENV0004 V3
Lab Batch No:	
Date Results Required:	**Standard TAT (5 days)**
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
	~~CZ5a_MW101~~												
	~~CZ5a_MW102~~												
	~~CZ5a_MW103~~												
	~~QC100~~												
☆	QC200	2/9/24	W		SEND TO ENVIROLAB								
	~~RS07~~												
	~~T605~~												
	~~T505~~												
			TOTALS										

Sample ID	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/OP/PCB/ Chlorinated herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major Ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
~~CZ5a_MW101~~	X	X	X	X	X	X	X				
~~CZ5a_MW102~~	X	X	X	X	X	X	X				
~~CZ5a_MW103~~		X	X	X	X	X					
~~QC100~~		X	X	X							
QC200		X	X	X							
~~RS07~~										X	X
~~T605~~									X		
~~T505~~									X		
TOTALS	2	5	5	5	3	3	2	0	2	1	1

Relinquished By:	NAME: Natalie Chandra / Jenny Lau	SIGNATURE	DATE 2/9/24
Received By:	NAME	SIGNATURE	DATE

	Y	N
Custody Seals Intact	Y	N
Samples Received Chilled	Y	N
Method of Shipment		

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.14 - Clyde Zone 5a RAP
Envirolab Reference	360800
Date Sample Received	03/09/2024
Date Instructions Received	03/09/2024
Date Results Expected to be Reported	10/09/2024

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

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	SVOCs in Water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	PFAS in Waters Short	Triazine Herbicides in Water	Acid Herbicides in Water
QC200	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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

CERTIFICATE OF ANALYSIS 360800

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details	
Your Reference	**SCL220037.14 - Clyde Zone 5a RAP**
Number of Samples	1 Water
Date samples received	03/09/2024
Date completed instructions received	03/09/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details	
Date results requested by	10/09/2024
Date of Issue	10/09/2024

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

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

Results Approved By
Amanda Chui, LC/Air Toxics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Greta Petzold, Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date Extracted	-	05/09/2024
Date Analysed	-	09/09/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	100
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	98

SVOCs in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	04/09/2024
Aniline	µg/L	<5
4-Chloroaniline	µg/L	<5
2-Nitroaniline	µg/L	<5
3-Nitroaniline	µg/L	<5
Dibenzofuran	µg/L	<5
2-Naphthylamine	µg/L	<5
1-Naphthylamine	µg/L	<5
4-Nitroaniline	µg/L	<5
Bis(2-chloroethyl) ether	µg/L	<5
Bis(2-Chloroisopropyl) ether	µg/L	<5
Bis(2-Chloroethoxy) methane	µg/L	<5
4-Chlorophenyl phenyl ether	µg/L	<5
4-Bromophenyl phenyl ether	µg/L	<5
Ethyl Methanesulfonate	µg/L	<5
Benzyl Alcohol	µg/L	<5
Isosafrole (cis+trans)	µg/L	<10
Safrole	µg/L	<5
Carbazole	µg/L	<5
Methapyrilene	µg/L	<10
p-Dimethylaminoazobenzene	µg/L	<5
Acetophenone	µg/L	<5
Nitrobenzene	µg/L	<5
Isophorone	µg/L	<5
1,3-Dinitrobenzene	µg/L	<5
2,6-Dinitrotoluene	µg/L	<5
5-Nitro-o-toluidine	µg/L	<5
Azobenzene	µg/L	<5
Phenacetin	µg/L	<5
Pentachloronitrobenzene	µg/L	<5
N-Nitrosodi-n-propylamine (NDPA)	µg/L	<5
N-Nitrosomorpholine (NMOR)	µg/L	<5
N-Nitrosopiperidine (NPIP)	µg/L	<5
N-Nitroso-n-butylamine (NDBA)	µg/L	<5
Diphenylamine	µg/L	<5

SVOCs in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
alpha-BHC	µg/L	<2
beta-BHC	µg/L	<2
gamma-BHC (Lindane)	µg/L	<2
delta-BHC	µg/L	<2
Heptachlor	µg/L	<2
Aldrin	µg/L	<2
Heptachlor Epoxide	µg/L	<2
gamma-Chlordane (trans-Chlordane)	µg/L	<2
alpha-Chlordane (cis-Chlordane)	µg/L	<2
Endosulfan I	µg/L	<2
4,4'-DDE (pp-DDE)	µg/L	<2
Dieldrin	µg/L	<2
Endrin	µg/L	<2
4,4'-DDD (pp-DDD)	µg/L	<2
Endosulfan II	µg/L	<2
Endrin Aldehyde	µg/L	<2
4,4'-DDT (pp-DDT)	µg/L	<2
Endosulfan Sulphate	µg/L	<2
Endrin Ketone	µg/L	<2
Methoxychlor	µg/L	<2
Mirex	ug/L	<2
Dichlorvos	µg/L	<2
Mevinphos	µg/L	<2
Phorate	µg/L	<2
Dimethoate	µg/L	<2
Diazinon	µg/L	<2
Disulfoton	µg/L	<2
Chlorpyrifos-methyl	µg/L	<2
Parathion-methyl	µg/L	<2
Ronnel	µg/L	<2
Fenitrothion	µg/L	<2
Malathion	µg/L	<2
Chlorpyrifos	µg/L	<2
Fenthion	µg/L	<2
Parathion	µg/L	<2
Bromophos-ethyl	µg/L	<2
Methidathion	µg/L	<2

SVOCs in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Fenamiphos	µg/L	<2
Ethion	µg/L	<2
Phosalone	µg/L	<2
Azinphos-methyl (Guthion)	µg/L	<2
Coumaphos	µg/L	<2
Naphthalene	µg/L	<2
2-Methylnaphthalene	µg/L	<2
2-Chloronaphthalene	µg/L	<2
1-Chloronaphthalene	µg/L	<2
Acenaphthylene	µg/L	<2
Acenaphthene	µg/L	<2
Fluorene	µg/L	<2
Phenanthrene	µg/L	<2
Anthracene	µg/L	<2
Fluoranthene	µg/L	<2
Pyrene	µg/L	<2
2-Acetylaminofluorene	µg/L	<2
Benzo(a)anthracene	µg/L	<2
Chrysene	µg/L	<2
Benzo(b,j,k)fluoranthene	µg/L	<4
7,12-Dimethylbenz(a)anthracene	µg/L	<2
Benzo(a)pyrene	µg/L	<2
3-Methylcholanthrene	µg/L	<2
Indeno(1,2,3-c,d)pyrene	µg/L	<2
Dibenzo(a,h)anthracene	µg/L	<2
Benzo(g,h,i)perylene	µg/L	<2
Phenol	µg/L	<2
2-Chlorophenol	µg/L	<2
2-Methylphenol (o-Cresol)	µg/L	<2
3/4-Methylphenol (m/p-Cresol)	µg/L	<4
2-Nitrophenol	µg/L	<2
2,4-Dimethylphenol	µg/L	<2
2,4-Dichlorophenol	µg/L	<2
2,6-Dichlorophenol	µg/L	<2
4-Chloro-3-methylphenol	µg/L	<5
2,4,6-Trichlorophenol	µg/L	<2
2,4,5-Trichlorophenol	µg/L	<2

SVOCs in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
2,4-Dintrophenol	µg/L	<20
4-Nitrophenol	µg/L	<20
2,3,4,6-Tetrachlorophenol	µg/L	<2
4,6-Dinitro-2-methylphenol	µg/L	<20
Pentachlorophenol	µg/L	<10
Dinoseb	µg/L	<20
Dimethyl phthalate	µg/L	<10
Diethyl phthalate	µg/L	<10
Di-n-butyl phthalate	µg/L	<50
Butyl benzyl phthalate	µg/L	<10
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	<50
Di-n-octyl phthalate	µg/L	<50
Pentachloroethane	µg/L	<2
1,3-Dichlorobenzene	µg/L	<2
1,4-Dichlorobenzene	µg/L	<2
1,2-Dichlorobenzene	µg/L	<2
Hexachloroethane	µg/L	<2
1,2,4-Trichlorobenzene	µg/L	<2
Hexachloropropene	µg/L	<2
Hexachlorobutadiene	µg/L	<2
Hexachlorocyclopentadiene	µg/L	<5
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	<4
Pentachlorobenzene	µg/L	<2
Hexachlorobenzene	µg/L	<2
Surrogate 2-Fluorophenol	%	69
Surrogate Phenol-d_6	%	49
Surrogate Nitrobenzene-d_5	%	100
Surrogate 4-Chloro-3-NBTF	%	66
Surrogate 2-Fluorobiphenyl	%	89
Surrogate 2,4,6-Tribromophenol	%	90
Surrogate *p*-Terphenyl-d_{14}	%	104

vTRH(C6-C10)/BTEXN in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	05/09/2024
Date analysed	-	09/09/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	100
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	98

svTRH (C10-C40) in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	05/09/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	92

PAHs in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	04/09/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	104

Organochlorine Pesticides in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	04/09/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	66

OP Pesticides in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	04/09/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	66

PCBs in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	04/09/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	89

HM in water - dissolved		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date prepared	-	04/09/2024
Date analysed	-	04/09/2024
Arsenic-Dissolved	µg/L	4
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	2
Zinc-Dissolved	µg/L	3
Iron-Dissolved	µg/L	15,000
Manganese-Dissolved	µg/L	460
Aluminium-Dissolved	µg/L	10

Metals in Water - Dissolved		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date digested	-	04/09/2024
Date analysed	-	05/09/2024
Phosphorus - Dissolved	mg/L	<0.05

PFAS in Waters Short		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date prepared	-	04/09/2024
Date analysed	-	04/09/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	92
Surrogate $^{13}C_2$ *PFOA*	%	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	87
Extracted ISTD $^{13}C_4$ *PFOS*	%	88
Extracted ISTD $^{13}C_4$ *PFOA*	%	90
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	76
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	75
Total Positive PFHxS & PFOS	µg/L	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01
Total Positive PFAS	µg/L	<0.01

Triazine Herbicides in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	04/09/2024
Date analysed	-	04/09/2024
Atrazine	mg/L	<0.002
Ametryn	mg/L	<0.002
Cyanazine	mg/L	<0.002
Hexazinone	mg/L	<0.002
Irgarol	mg/L	<0.002
Metribuzin	mg/L	<0.002
Prometryn	mg/L	<0.002
Propazine	mg/L	<0.002
Simazine	mg/L	<0.002
Terbutryn	mg/L	<0.002
Terbuthylazine	mg/L	<0.002
Surrogate p-Terphenyl-d14	%	104

Acid Herbicides in Water		
Our Reference		360800-1
Your Reference	UNITS	QC200
Date Sampled		02/09/2024
Type of sample		Water
Date extracted	-	06/09/2024
Date analysed	-	07/09/2024
Clopyralid	µg/L	<0.5
3,5-Dichlorobenzoic acid	µg/L	<0.5
o-chlorophenoxy acetic acid	µg/L	<0.5
4-CPA	µg/L	<0.5
Dicamba	µg/L	<0.5
MCPP	µg/L	<0.5
MCPA	µg/L	<0.5
Dichlorprop	µg/L	<0.5
2,4-D	µg/L	<0.5
Bromoxynil	µg/L	<0.5
Triclopyr	µg/L	<0.5
2,4,5-TP	µg/L	<0.5
2,4,5-T	µg/L	<0.5
MCPB	µg/L	<0.5
Dinoseb	µg/L	<1
2,4-DB	µg/L	<0.5
Ioxynil	µg/L	<1
Picloram	µg/L	<1
Acifluorfen	µg/L	<2
2,4,6-T	µg/L	<0.5
2,6-D	µg/L	<0.5
Bentazon	µg/L	<1
Chloramben	µg/L	<1
Fluroxypyr	µg/L	<1
Surrogate 2.4- DCPA	%	91

Method ID	Methodology Summary
Ext-061	Analysed by Envirolab Melbourne
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MSMS.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			05/09/2024	1	05/09/2024	09/09/2024		05/09/2024	[NT]
Date Analysed	-			09/09/2024	1	09/09/2024	10/09/2024		09/09/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	101	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	120	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	105	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	101	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	105	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	94	1	100	103	3	100	[NT]
Surrogate Toluene-d8	%		Org-023	100	1	100	100	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	1	98	100	2	101	[NT]

QUALITY CONTROL: SVOCs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	09/09/2024	[NT]
Aniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chloroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
3-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzofuran	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-chloroethyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroisopropyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroethoxy) methane	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chlorophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Bromophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethyl Methanesulfonate	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzyl Alcohol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isosafrole (cis+trans)	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Safrole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbazole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methapyrilene	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
p-Dimethylaminoazobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acetophenone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isophorone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-Dinitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dinitrotoluene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
5-Nitro-o-toluidine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenacetin	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloronitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosodi-n-propylamine (NDPA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosomorpholine (NMOR)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosopiperidine (NPIP)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitroso-n-butylamine (NDBA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diphenylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	92	[NT]
beta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
gamma-BHC (Lindane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
delta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
Aldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Heptachlor Epoxide	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
gamma-Chlordane (trans-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane (cis-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDE (pp-DDE)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Dieldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Endrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	78	[NT]
4,4'-DDD (pp-DDD)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endosulfan II	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDT (pp-DDT)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Endrin Ketone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methoxychlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Mevinphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Fenitrothion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
Malathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	92	[NT]
Chlorpyrifos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
Fenthion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	76	[NT]
Bromophos-ethyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Phosalone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Coumaphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Naphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
2-Methylnaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Fluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Phenanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
2-Acetylaminofluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Benzo(b,j,k)fluoranthene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
7,12-Dimethylbenz(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	90	[NT]
3-Methylcholanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	82	[NT]
2-Chlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	88	[NT]
2-Methylphenol (o-Cresol)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	82	[NT]
4-Chloro-3-methylphenol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dintrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	90	[NT]
2,3,4,6-Tetrachlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,6-Dinitro-2-methylphenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
Dinoseb	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Dimethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	90	[NT]
Diethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	91	[NT]
Di-n-butyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Butyl benzyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Di-n-octyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	86	[NT]
1,2-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloropropene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	85	[NT]
Hexachlorobutadiene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorocyclopentadiene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorophenol	%		Org-025	56	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Phenol-d_6	%		Org-025	36	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate Nitrobenzene-d_5	%		Org-025	97	[NT]	[NT]	[NT]	[NT]	131	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-025	60	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-025	69	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-025	70	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-025	83	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			05/09/2024	1	05/09/2024	09/09/2024		05/09/2024	[NT]
Date analysed	-			09/09/2024	1	09/09/2024	10/09/2024		09/09/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	104	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	104	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	105	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	104	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	94	1	100	101	1	100	[NT]
Surrogate Toluene-d8	%		Org-023	100	1	100	100	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	1	98	101	3	101	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			05/09/2024	[NT]	[NT]	[NT]	[NT]	05/09/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	76	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	83	[NT]	[NT]	[NT]	[NT]	129	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	98	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	82	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	102	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	60	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: OP Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	82	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	64	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	60	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	82	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	60	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	91	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	69	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	107	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	114	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			05/09/2024	[NT]	[NT]	[NT]	[NT]	05/09/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PFAS in Waters Short					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	101	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	111	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	111	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	82	[NT]	[NT]	[NT]	[NT]	86	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	82	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: Triazine Herbicides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Date analysed	-			04/09/2024	[NT]	[NT]	[NT]	[NT]	04/09/2024	[NT]
Atrazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	92	[NT]
Ametryn	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyanazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexazinone	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Irgarol	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Metribuzin	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Prometryn	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	62	[NT]
Propazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	80	[NT]
Simazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Terbutryn	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Terbuthylazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	83	[NT]	[NT]	[NT]	[NT]	129	[NT]

QUALITY CONTROL: Acid Herbicides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			06/09/2024	[NT]	[NT]	[NT]	[NT]	06/09/2024	[NT]
Date analysed	-			07/09/2024	[NT]	[NT]	[NT]	[NT]	07/09/2024	[NT]
Clopyralid	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
3,5-Dichlorobenzoic acid	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-chlorophenoxy acetic acid	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-CPA	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dicamba	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	70	[NT]
MCPP	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	81	[NT]
MCPA	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	81	[NT]
Dichlorprop	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-D	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	76	[NT]
Bromoxynil	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Triclopyr	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-TP	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-T	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	86	[NT]
MCPB	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dinoseb	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-DB	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ioxynil	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Picloram	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acifluorfen	µg/L	2	Ext-061	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-T	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-D	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bentazon	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloramben	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluroxypyr	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2.4- DCPA	%		Ext-061	70	[NT]	[NT]	[NT]	[NT]	70	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Phenoxy Acid Herbicides analysed by Envirolab Services Melbourne. Report No. MFI0089

October 2024 GME

!!! PLS immediately test pH for
1. SMW-WTP_BH02_W
2. SMW_WTP_BH03A_W
as in-situ WQM did not work
Thank you!!

HT

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10
Project/Site:	SCL220037.10
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page of	
Number of Eskies:	2

Lab:	ALS Sydney
Lab Quote No:	ES24EPIENV0004 V3
Lab Batch No:	
Date Results Required:	Standard TAT (5 days)
Sample Disposal After:	

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid: 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients**: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major Ions**: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
1	QC01	17/10	W												✓	✓	✓			✓				
*	QC02													* send			To	Envirolab						
2	RS01																						✓	✓
3	SMW_BH057_S													✓	✓	✓	✓	✓	✓	✓				
4	SMW-BH057_W													✓	✓	✓	✓	✓	✓	✓				
5	TS01																				✓	✓		
6	TB01																					✓		
7	SMW_BH004_S	18/10												✓	✓	✓	✓	✓	✓	✓				
8	SMW_WTP_BH02_W													✓	✓	✓	✓	✓	✓	✓				
9	SMW_WTP_BH03A_W													✓	✓	✓	✓	✓	✓	✓				
10	RS02																						✓	✓
				TOTALS										0	0	0	0	0	0	0	0	0	0	0

Relinquished By:	NAME Natalie Chandra SIGNATURE DATE 18/10
Received By:	NAME Wass SIGNATURE DATE 18/10/24 1600
Custody Seals Intact	Y N
Samples Received Chilled	Y N
Method of Shipment	

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C ... minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per ... ety for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method L ... /8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list ...
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per ... SEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compou...

Environmental Division
Sydney
Work Order Reference
ES2434174

Telephone : +61-2-8784 8555

Subcon: Forward Lab / Split WO
Lab / Analysis: Envirolab - QC02
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

Epic Environmental Pty Ltd ABN 54 169 579 275

web www.epicenvironmental.com.au
email labs@epicenvironmental.com.au

Enviolab.

Chain of Custody Record

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~
Project/Site:	SCL220037.10	Lab Quote No:	~~ES24EPIENV0004 V3~~
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page of		Sample Disposal After:	
Number of Eskies:			

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid: 60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients**: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major ions**: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
	QC02	17/10	W																					
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:				Received By:			Custody Seals Intact	Y	N
NAME	Natalie Chandra	SIGNATURE	DATE	NAME	SIGNATURE	DATE	Samples Received Chilled	Y	N
							Method of Shipment		

NOTES:

Bottles supplied for As speciation to be placed **on HOLD and NOT analysed.**

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential, DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2434766**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 4
Order number	: ----	Quote number	: ES2024EPIENV0004 (ES24EPIENV0004)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: SCL220037.10		
Sampler	: NC		

Dates

Date Samples Received	: 23-Oct-2024 12:40	Issue Date	: 25-Oct-2024
Client Requested Due Date	: 30-Oct-2024	Scheduled Reporting Date	: **30-Oct-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 11.5'C, 13.9'C, 13.2'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
- This is an updated SRN, to confirm sample QC04 forwarded to Envirolab for analysis.
- **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.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2434766-001	: [21-Oct-2024]	: PM-BH14-W - Received as PM-MW14-W
ES2434766-003	: [21-Oct-2024]	: PM-BH15-W - Received as PM-MW15-W
ES2434766-004	: [10-Oct-2024]	: TB02 - Received as Trip Blank
ES2434766-005	: [10-Oct-2024]	: TS02 - Received as Trip Spike 3

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 - EA005P pH (Auto Titrator)	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-16 TRH/BTEXN/PAH/OC/OP/PCB/8 Metals	WATER - W-23 minus BTEX SVOC/VOC without BTEX
ES2434766-001	21-Oct-2024 00:00	PM-BH14-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-002	21-Oct-2024 00:00	QC03		✓	✓			✓	✓
ES2434766-003	21-Oct-2024 00:00	PM-BH15-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-006	21-Oct-2024 00:00	SMW_ENV010_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-007	21-Oct-2024 00:00	SMW_ENV009_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-009	22-Oct-2024 00:00	SMW_WTP_BH25_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-010	22-Oct-2024 00:00	SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓
ES2434766-011	22-Oct-2024 00:00	GALC-MW16_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-012	22-Oct-2024 00:00	SMW_WTP_BH13_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA075 Redox Potential	WATER - EG005F Dissolved Metals by ICPAES	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP025 Dissolved Oxygen (DO)	WATER - EP231 PFAS - Short Suite (12 analytes)
ES2434766-001	21-Oct-2024 00:00	PM-BH14-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-002	21-Oct-2024 00:00	QC03				✓	✓		✓
ES2434766-003	21-Oct-2024 00:00	PM-BH15-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-006	21-Oct-2024 00:00	SMW_ENV010_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-007	21-Oct-2024 00:00	SMW_ENV009_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-009	22-Oct-2024 00:00	SMW_WTP_BH25_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-010	22-Oct-2024 00:00	SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓
ES2434766-011	22-Oct-2024 00:00	GALC-MW16_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-012	22-Oct-2024 00:00	SMW_WTP_BH13_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP080 BTEXN	WATER - EP202SL Phenoxyacetic Acid	WATER - W-05 TRH/BTEXN/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2434766-001	21-Oct-2024 00:00	PM-BH14-W Received ...		✓		
ES2434766-002	21-Oct-2024 00:00	QC03		✓		
ES2434766-003	21-Oct-2024 00:00	PM-BH15-W Received ...		✓		
ES2434766-004	10-Oct-2024 00:00	TB02 Received as Tr...				✓
ES2434766-005	10-Oct-2024 00:00	TS02 Received as Tr...	✓			
ES2434766-006	21-Oct-2024 00:00	SMW_ENV010_W		✓		
ES2434766-007	21-Oct-2024 00:00	SMW_ENV009_W		✓		
ES2434766-008	21-Oct-2024 00:00	RS03			✓	
ES2434766-009	22-Oct-2024 00:00	SMW_WTP_BH25_W		✓		
ES2434766-010	22-Oct-2024 00:00	SMW_WTP_BH25_S		✓		
ES2434766-011	22-Oct-2024 00:00	GALC-MW16_W		✓		
ES2434766-012	22-Oct-2024 00:00	SMW_WTP_BH13_W		✓		
ES2434766-013	22-Oct-2024 00:00	RS04			✓	

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							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
PM-BH14-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
PM-BH15-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV010_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
EA075: Redox Potential							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
PM-BH14-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
PM-BH15-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV010_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
EP025: Oxygen - Dissolved							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
PM-BH14-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
PM-BH15-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV010_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----

SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

JONATHAN PICKERDEN

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

NATALIE CHANDRA

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2434174**	Page	: 1 of 36
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 18-Oct-2024 16:00
Order number	: ----	Date Analysis Commenced	: 18-Oct-2024
C-O-C number	: ----	Issue Date	: 25-Oct-2024 17:34
Sampler	: NC		
Site	: ----		
Quote number	: ES24EPIENV0004		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- 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.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	6.46	6.97	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	525	11600	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	311	7490	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	----	200	74.5	----
pH Redox	----	0.01	pH Unit	----	----	6.18	6.53	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	138	931	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	138	931	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	80	169	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	35	3630	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	11	364	----
Magnesium	7439-95-4	1	mg/L	----	----	17	267	----
Sodium	7440-23-5	1	mg/L	----	----	75	1840	----
Potassium	7440-09-7	1	mg/L	----	----	12	46	----
ED093F: SAR and Hardness Calculations								
Total Hardness as CaCO3	----	1	mg/L	----	----	97	2010	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	**0.042**	----	**0.039**	<0.001	----
Nickel	7440-02-0	0.001	mg/L	**0.001**	----	**0.001**	<0.001	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	**0.007**	<0.005	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	<0.005	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	<0.0001	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<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	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	**0.03**	**2.67**	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	<0.01	<0.01	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	**0.10**	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	**0.10**	<0.01	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	**0.2**	**2.7**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	----	**0.3**	**2.7**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	**0.07**	**0.08**	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	<0.01	<0.01	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	----	**5.41**	**124**	----
ø Total Cations	----	0.01	meq/L	----	----	**5.52**	**121**	----
ø Ionic Balance	----	0.01	%	----	----	**0.98**	**1.29**	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	----	**4.6**	**3.9**	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	----	<1	<1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	----	<0.5	<0.5	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	----	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	----	<2.0	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	<0.5	<0.5	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	<5	<5	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	----	<5	<5	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	----	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	<5	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	<5	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	<50	<50	----
Chloromethane	74-87-3	50	µg/L	<50	----	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	<50	----	<50	<50	----
Bromomethane	74-83-9	50	µg/L	<50	----	<50	<50	----
Chloroethane	75-00-3	50	µg/L	<50	----	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	<50	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	----	<5	<5	----
Iodomethane	74-88-4	5	µg/L	<5	----	<5	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	----	<5	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	----	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	----	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	----	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	----	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	----	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	----	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	----	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	----	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	----	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	<5	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	----	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	----	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	----	<5	<5	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	----	<2	<2	----
2-Chlorophenol	95-57-8	2	µg/L	<2	----	<2	<2	----
2-Methylphenol	95-48-7	2	µg/L	<2	----	<2	<2	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	----	<4	<4	----
2-Nitrophenol	88-75-5	2	µg/L	<2	----	<2	<2	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	----	<2	<2	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	----	<2	<2	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	----	<2	<2	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	----	<2	<2	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	----	<2	<2	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	----	<2	<2	----
Pentachlorophenol	87-86-5	4	µg/L	<4	----	<4	<4	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	----	<2	<2	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	----	<2	<2	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	----	<2	<2	----
Acenaphthylene	208-96-8	2	µg/L	<2	----	<2	<2	----
Acenaphthene	83-32-9	2	µg/L	<2	----	<2	<2	----
Fluorene	86-73-7	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	2	µg/L	<2	----	<2	<2	----
Anthracene	120-12-7	2	µg/L	<2	----	<2	<2	----
Fluoranthene	206-44-0	2	µg/L	<2	----	<2	<2	----
Pyrene	129-00-0	2	µg/L	<2	----	<2	<2	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	----	<2	<2	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	----	<2	<2	----
Chrysene	218-01-9	2	µg/L	<2	----	<2	<2	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	----	<4	<4	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	----	<2	<2	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	----	<2	<2	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	----	<2	<2	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	----	<2	<2	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	----	<2	<2	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	----	<2	<2	----
^ Sum of PAHs	----	2	µg/L	<2	----	<2	<2	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	<2	<2	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	----	<2	<2	----
Diethyl phthalate	84-66-2	2	µg/L	<2	----	<2	<2	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	----	<2	<2	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	----	<2	<2	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	----	<10	<10	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	----	<2	<2	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	----	<2	<2	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP075D: Nitrosamines - Continued								
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	----	<4	<4	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	----	<2	<2	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	----	<2	<2	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	----	<2	<2	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	----	<2	<2	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	----	<4	<4	----
Methapyrilene	91-80-5	2	µg/L	<2	----	<2	<2	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	----	<2	<2	----
Acetophenone	98-86-2	2	µg/L	<2	----	<2	<2	----
Nitrobenzene	98-95-3	2	µg/L	<2	----	<2	<2	----
Isophorone	78-59-1	2	µg/L	<2	----	<2	<2	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	----	<4	<4	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	----	<4	<4	----
1-Naphthylamine	134-32-7	2	µg/L	<2	----	<2	<2	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	----	<2	<2	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	----	<2	<2	----
Azobenzene	103-33-3	2	µg/L	<2	----	<2	<2	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	----	<2	<2	----
Phenacetin	62-44-2	2	µg/L	<2	----	<2	<2	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	----	<2	<2	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	----	<2	<2	----
Pronamide	23950-58-5	2	µg/L	<2	----	<2	<2	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	----	<2	<2	----
Chlorobenzilate	510-15-6	2	µg/L	<2	----	<2	<2	----
EP075F: Haloethers								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP075F: Haloethers - Continued								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	----	<2	<2	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	----	<2	<2	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	----	<2	<2	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	----	<2	<2	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	----	<2	<2	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	----	<2	<2	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	----	<2	<2	----
Hexachloroethane	67-72-1	2	µg/L	<2	----	<2	<2	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	----	<2	<2	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	----	<2	<2	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	----	<2	<2	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	----	<10	<10	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	----	<2	<2	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	----	<4	<4	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	----	<2	<2	----
4-Chloroaniline	106-47-8	2	µg/L	<2	----	<2	<2	----
2-Nitroaniline	88-74-4	4	µg/L	<4	----	<4	<4	----
3-Nitroaniline	99-09-2	4	µg/L	<4	----	<4	<4	----
Dibenzofuran	132-64-9	2	µg/L	<2	----	<2	<2	----
4-Nitroaniline	100-01-6	2	µg/L	<2	----	<2	<2	----
Carbazole	86-74-8	2	µg/L	<2	----	<2	<2	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	----	<2	<2	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	----	<2	<2	----
beta-BHC	319-85-7	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	----	<2	<2	----
delta-BHC	319-86-8	2	µg/L	<2	----	<2	<2	----
Heptachlor	76-44-8	2	µg/L	<2	----	<2	<2	----
Aldrin	309-00-2	2	µg/L	<2	----	<2	<2	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	----	<2	<2	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	----	<2	<2	----
4.4`-DDE	72-55-9	2	µg/L	<2	----	<2	<2	----
Dieldrin	60-57-1	2	µg/L	<2	----	<2	<2	----
Endrin	72-20-8	2	µg/L	<2	----	<2	<2	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	----	<2	<2	----
4.4`-DDD	72-54-8	2	µg/L	<2	----	<2	<2	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	----	<2	<2	----
4.4`-DDT	50-29-3	4	µg/L	<4	----	<4	<4	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	<4	<4	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	<4	<4	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	----	<2	<2	----
Dimethoate	60-51-5	2	µg/L	<2	----	<2	<2	----
Diazinon	333-41-5	2	µg/L	<2	----	<2	<2	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	----	<2	<2	----
Malathion	121-75-5	2	µg/L	<2	----	<2	<2	----
Fenthion	55-38-9	2	µg/L	<2	----	<2	<2	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	----	<2	<2	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	----	<2	<2	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	----	<2	<2	----
Prothiofos	34643-46-4	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

	Compound	CAS Number	LOR	Unit	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
				Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
					ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
					Result	Result	Result	Result	Result
	EP075J: Organophosphorus Pesticides - Continued								
	Ethion	563-12-2	2	µg/L	<2	----	<2	<2	----
	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	<1	<1	<1	<1	**18**
	Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	**17**
	Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	**16**
	meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	**20**
	ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	**19**
^	**Total Xylenes**	----	2	µg/L	<2	<2	<2	<2	**39**
^	**Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	**90**
	Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	**20**
	EP202A: Phenoxyacetic Acid Herbicides by LCMS								
	4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	----	<10	<10	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
2.4-DB	94-82-6	10	µg/L	<10	----	<10	<10	----
Dicamba	1918-00-9	10	µg/L	<10	----	<10	<10	----
Mecoprop	93-65-2	10	µg/L	<10	----	<10	<10	----
MCPA	94-74-6	10	µg/L	<10	----	<10	<10	----
2.4-DP	120-36-5	10	µg/L	<10	----	<10	<10	----
2.4-D	94-75-7	10	µg/L	<10	----	<10	<10	----
Triclopyr	55335-06-3	10	µg/L	<10	----	<10	<10	----
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	----	<10	<10	----
2.4.5-T	93-76-5	10	µg/L	<10	----	<10	<10	----
MCPB	94-81-5	10	µg/L	<10	----	<10	<10	----
Picloram	1918-02-1	10	µg/L	<10	----	<10	<10	----
Clopyralid	1702-17-6	10	µg/L	<10	----	<10	<10	----
Fluroxypyr	69377-81-7	10	µg/L	<10	----	<10	<10	----
2.6-D	575-90-6	10	µg/L	<10	----	<10	<10	----
2.4.6-T	575-89-3	10	µg/L	<10	----	<10	<10	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	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	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.03**	----	**0.02**	<0.01	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	<0.01	<0.01	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
			Sampling date / time	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.04**	----	**0.03**	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.04**	----	**0.03**	<0.01	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**89.5**	----	**112**	**103**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**102**	----	**125**	**111**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**114**	----	**138**	**122**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**111**	----	**115**	**116**	----
Toluene-D8	2037-26-5	5	%	**104**	----	**107**	**107**	----
4-Bromofluorobenzene	460-00-4	5	%	**104**	----	**106**	**105**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**28.5**	----	**30.7**	**30.6**	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**56.5**	----	**68.5**	**59.1**	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**41.4**	----	**60.8**	**53.6**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**70.2**	----	**82.2**	**70.4**	----
Anthracene-d10	1719-06-8	1.0	%	**74.6**	----	**88.1**	**84.2**	----
4-Terphenyl-d14	1718-51-0	1.0	%	**76.1**	----	**93.9**	**81.8**	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	QC01	RS01	SMW_BH057_S	SMW_BH057_W	TS01
Sampling date / time				17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	17-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434174-001	ES2434174-002	ES2434174-003	ES2434174-004	ES2434174-005
				Result	Result	Result	Result	Result
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	42.1	----	46.1	40.8	----
Phenol-d6	13127-88-3	2	%	32.7	----	37.8	33.9	----
2-Chlorophenol-D4	93951-73-6	2	%	58.2	----	69.6	62.6	----
2.4.6-Tribromophenol	118-79-6	2	%	45.6	----	57.0	51.6	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	72.8	----	74.9	69.6	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	57.2	----	63.8	53.4	----
2-Fluorobiphenyl	321-60-8	2	%	68.2	----	82.1	73.0	----
Anthracene-d10	1719-06-8	2	%	83.2	----	99.0	93.0	----
4-Terphenyl-d14	1718-51-0	2	%	79.8	----	95.9	90.2	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	104	102	107	108	106
Toluene-D8	2037-26-5	2	%	101	97.2	105	105	102
4-Bromofluorobenzene	460-00-4	2	%	108	103	111	111	106
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	105	----	102	106	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	101	----	104	101	----
13C8-PFOA	----	0.02	%	102	----	101	102	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	6.79	7.65	7.50	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	429	12200	18300	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	293	7230	12100	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	263	105	71.0	----
pH Redox	----	0.01	pH Unit	----	5.99	6.98	6.82	----
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	----	71	1070	1110	----
Total Alkalinity as CaCO3	----	1	mg/L	----	71	1070	1110	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	50	235	383	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	41	3790	5980	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	10	159	218	----
Magnesium	7439-95-4	1	mg/L	----	10	354	489	----
Sodium	7440-23-5	1	mg/L	----	67	1880	3350	----
Potassium	7440-09-7	1	mg/L	----	4	45	62	----
ED093F: SAR and Hardness Calculations								
Total Hardness as CaCO3	----	1	mg/L	----	66	1850	2560	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	----	**0.034**	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	**0.003**	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	**0.022**	<0.005	<0.005	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	<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	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	**0.01**	**0.81**	**2.84**	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	**0.14**	<0.01	**0.04**	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	**7.09**	<0.01	**0.44**	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	**7.23**	<0.01	**0.48**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	**0.5**	**1.1**	**12.3**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	**7.7**	**1.1**	**12.8**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	**0.05**	**0.05**	**2.84**	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	**0.02**	<0.01	<0.01	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	**4.14**	----	----	----
ø Total Anions	----	0.01	meq/L	----	----	**133**	**199**	----
ø Total Cations	----	0.01	meq/L	----	**4.34**	**120**	**198**	----
ø Ionic Balance	----	0.01	%	----	**2.17**	----	----	----
ø Ionic Balance	----	0.01	%	----	----	**5.21**	**0.10**	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	**3.9**	**7.6**	**4.7**	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	----	<1	<1	<1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	<0.5	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	----	<0.5	<0.5	<0.5	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	----	<0.5	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	<0.5	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
alpha-Endosulfan	959-98-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	----	<0.5	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	----	<0.5	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
4.4`-DDT	50-29-3	2.0	µg/L	----	<2.0	<2.0	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	----	<2.0	<2.0	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	----	<0.5	<0.5	<0.5	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	<0.5	<0.5	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	<0.5	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	----	<2.0	<2.0	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	----	<2.0	<2.0	<2.0	----
Malathion	121-75-5	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion	56-38-2	2.0	µg/L	----	<2.0	<2.0	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	----	<0.5	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	<0.5	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	<5	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	----	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	----	<5	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	----	<5	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	----	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	----	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	----	<5	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	----	<50	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	<5	<5	<5	----
EP074D: Fumigants								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
2.2-Dichloropropane	594-20-7	5	µg/L	----	<5	<5	<5	----
1.2-Dichloropropane	78-87-5	5	µg/L	----	<5	<5	<5	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	<5	<5	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	<5	<5	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L	----	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	----	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L	----	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L	----	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	<50	<50	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L	----	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L	----	<5	<5	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	<5	<5	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L	----	<5	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	<5	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	<5	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	----	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	<5	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	----	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	----	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	----	<5	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	<5	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	----	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	----	<5	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	<5	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	<5	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	<5	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	----	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	----	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	----	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	----	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	----	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	----	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	----	<5	<5	<5	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	----	<2	<2	<2	----
2-Chlorophenol	95-57-8	2	µg/L	----	<2	<2	<2	----
2-Methylphenol	95-48-7	2	µg/L	----	<2	<2	<2	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	<4	<4	<4	----
2-Nitrophenol	88-75-5	2	µg/L	----	<2	<2	<2	----
2.4-Dimethylphenol	105-67-9	2	µg/L	----	<2	<2	<2	----
2.4-Dichlorophenol	120-83-2	2	µg/L	----	<2	<2	<2	----
2.6-Dichlorophenol	87-65-0	2	µg/L	----	<2	<2	<2	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	----	<2	<2	<2	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	----	<2	<2	<2	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	----	<2	<2	<2	----
Pentachlorophenol	87-86-5	4	µg/L	----	<4	<4	<4	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	----	<2	<2	<2	----
2-Methylnaphthalene	91-57-6	2	µg/L	----	<2	<2	<2	----
2-Chloronaphthalene	91-58-7	2	µg/L	----	<2	<2	<2	----
Acenaphthylene	208-96-8	2	µg/L	----	<2	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	2	µg/L	----	<2	<2	<2	----
Fluorene	86-73-7	2	µg/L	----	<2	<2	<2	----
Phenanthrene	85-01-8	2	µg/L	----	<2	<2	<2	----
Anthracene	120-12-7	2	µg/L	----	<2	<2	<2	----
Fluoranthene	206-44-0	2	µg/L	----	<2	<2	<2	----
Pyrene	129-00-0	2	µg/L	----	<2	<2	<2	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	----	<2	<2	<2	----
Benz(a)anthracene	56-55-3	2	µg/L	----	<2	<2	<2	----
Chrysene	218-01-9	2	µg/L	----	<2	<2	<2	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	----	<4	<4	<4	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	----	<2	<2	<2	----
Benzo(a)pyrene	50-32-8	2	µg/L	----	<2	<2	<2	----
3-Methylcholanthrene	56-49-5	2	µg/L	----	<2	<2	<2	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	----	<2	<2	<2	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L	----	<2	<2	<2	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L	----	<2	<2	<2	----
^ Sum of PAHs	----	2	µg/L	----	<2	<2	<2	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	----	<2	<2	<2	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	<2	<2	<2	----
Diethyl phthalate	84-66-2	2	µg/L	----	<2	<2	<2	----
Di-n-butyl phthalate	84-74-2	2	µg/L	----	<2	<2	<2	----
Butyl benzyl phthalate	85-68-7	2	µg/L	----	<2	<2	<2	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	<10	<10	<10	----
Di-n-octylphthalate	117-84-0	2	µg/L	----	<2	<2	<2	----
EP075D: Nitrosamines								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075D: Nitrosamines - Continued								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	<2	<2	<2	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	<2	<2	<2	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	<4	<4	<4	----
N-Nitrosomorpholine	59-89-2	2	µg/L	----	<2	<2	<2	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	<2	<2	<2	----
N-Nitrosopiperidine	100-75-4	2	µg/L	----	<2	<2	<2	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	<2	<2	<2	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	<4	<4	<4	----
Methapyrilene	91-80-5	2	µg/L	----	<2	<2	<2	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	<2	<2	<2	----
Acetophenone	98-86-2	2	µg/L	----	<2	<2	<2	----
Nitrobenzene	98-95-3	2	µg/L	----	<2	<2	<2	----
Isophorone	78-59-1	2	µg/L	----	<2	<2	<2	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	----	<4	<4	<4	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	----	<4	<4	<4	----
1-Naphthylamine	134-32-7	2	µg/L	----	<2	<2	<2	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	<2	<2	<2	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	<2	<2	<2	----
Azobenzene	103-33-3	2	µg/L	----	<2	<2	<2	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	----	<2	<2	<2	----
Phenacetin	62-44-2	2	µg/L	----	<2	<2	<2	----
4-Aminobiphenyl	92-67-1	2	µg/L	----	<2	<2	<2	----
Pentachloronitrobenzene	82-68-8	2	µg/L	----	<2	<2	<2	----
Pronamide	23950-58-5	2	µg/L	----	<2	<2	<2	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	<2	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075E: Nitroaromatics and Ketones - Continued								
Chlorobenzilate	510-15-6	2	µg/L	----	<2	<2	<2	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	----	<2	<2	<2	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	----	<2	<2	<2	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	----	<2	<2	<2	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	----	<2	<2	<2	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	----	<2	<2	<2	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	----	<2	<2	<2	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	----	<2	<2	<2	----
Hexachloroethane	67-72-1	2	µg/L	----	<2	<2	<2	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	----	<2	<2	<2	----
Hexachloropropylene	1888-71-7	2	µg/L	----	<2	<2	<2	----
Hexachlorobutadiene	87-68-3	2	µg/L	----	<2	<2	<2	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	----	<10	<10	<10	----
Pentachlorobenzene	608-93-5	2	µg/L	----	<2	<2	<2	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	----	<4	<4	<4	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	----	<2	<2	<2	----
4-Chloroaniline	106-47-8	2	µg/L	----	<2	<2	<2	----
2-Nitroaniline	88-74-4	4	µg/L	----	<4	<4	<4	----
3-Nitroaniline	99-09-2	4	µg/L	----	<4	<4	<4	----
Dibenzofuran	132-64-9	2	µg/L	----	<2	<2	<2	----
4-Nitroaniline	100-01-6	2	µg/L	----	<2	<2	<2	----
Carbazole	86-74-8	2	µg/L	----	<2	<2	<2	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	----	<2	<2	<2	----
EP075I: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
alpha-BHC	319-84-6	2	µg/L	----	<2	<2	<2	----
beta-BHC	319-85-7	2	µg/L	----	<2	<2	<2	----
gamma-BHC - (Lindane)	58-89-9	2	µg/L	----	<2	<2	<2	----
delta-BHC	319-86-8	2	µg/L	----	<2	<2	<2	----
Heptachlor	76-44-8	2	µg/L	----	<2	<2	<2	----
Aldrin	309-00-2	2	µg/L	----	<2	<2	<2	----
Heptachlor epoxide	1024-57-3	2	µg/L	----	<2	<2	<2	----
alpha-Endosulfan	959-98-8	2	µg/L	----	<2	<2	<2	----
4.4`-DDE	72-55-9	2	µg/L	----	<2	<2	<2	----
Dieldrin	60-57-1	2	µg/L	----	<2	<2	<2	----
Endrin	72-20-8	2	µg/L	----	<2	<2	<2	----
beta-Endosulfan	33213-65-9	2	µg/L	----	<2	<2	<2	----
4.4`-DDD	72-54-8	2	µg/L	----	<2	<2	<2	----
Endosulfan sulfate	1031-07-8	2	µg/L	----	<2	<2	<2	----
4.4`-DDT	50-29-3	4	µg/L	----	<4	<4	<4	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	----	<4	<4	<4	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	----	<4	<4	<4	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	----	<2	<2	<2	----
Dimethoate	60-51-5	2	µg/L	----	<2	<2	<2	----
Diazinon	333-41-5	2	µg/L	----	<2	<2	<2	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	----	<2	<2	<2	----
Malathion	121-75-5	2	µg/L	----	<2	<2	<2	----
Fenthion	55-38-9	2	µg/L	----	<2	<2	<2	----
Chlorpyrifos	2921-88-2	2	µg/L	----	<2	<2	<2	----
Pirimphos-ethyl	23505-41-1	2	µg/L	----	<2	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075J: Organophosphorus Pesticides - Continued								
Chlorfenvinphos	470-90-6	2	µg/L	----	<2	<2	<2	----
Prothiofos	34643-46-4	2	µg/L	----	<2	<2	<2	----
Ethion	563-12-2	2	µg/L	----	<2	<2	<2	----
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	<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	<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	<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	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	----	<10	<10	<10	----
2.4-DB	94-82-6	10	µg/L	----	<10	<10	<10	----
Dicamba	1918-00-9	10	µg/L	----	<10	<10	<10	----
Mecoprop	93-65-2	10	µg/L	----	<10	<10	<10	----
MCPA	94-74-6	10	µg/L	----	<10	<10	<10	----
2.4-DP	120-36-5	10	µg/L	----	<10	<10	<10	----
2.4-D	94-75-7	10	µg/L	----	<10	<10	<10	----
Triclopyr	55335-06-3	10	µg/L	----	<10	<10	<10	----
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	----	<10	<10	<10	----
2.4.5-T	93-76-5	10	µg/L	----	<10	<10	<10	----
MCPB	94-81-5	10	µg/L	----	<10	<10	<10	----
Picloram	1918-02-1	10	µg/L	----	<10	<10	<10	----
Clopyralid	1702-17-6	10	µg/L	----	<10	<10	<10	----
Fluroxypyr	69377-81-7	10	µg/L	----	<10	<10	<10	----
2.6-D	575-90-6	10	µg/L	----	<10	<10	<10	----
2.4.6-T	575-89-3	10	µg/L	----	<10	<10	<10	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	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	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	----	**0.02**	<0.01	<0.01	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	----	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	----	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	<0.02	<0.02	<0.02	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	**0.02**	<0.01	<0.01	----
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	**0.02**	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	**0.04**	<0.01	<0.01	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	84.5	65.3	67.2	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	95.4	92.3	97.4	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	106	102	109	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	108	122	118	----
Toluene-D8	2037-26-5	5	%	----	100	116	106	----
4-Bromofluorobenzene	460-00-4	5	%	----	97.8	114	105	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	26.4	29.7	28.2	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	52.2	54.0	53.5	----
2.4.6-Tribromophenol	118-79-6	1.0	%	----	40.0	45.6	49.3	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	67.3	65.1	64.1	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB01	SMW_BH004_S	SMW_WTP_BH02_W	SMW_WTP_BH03A_W	RS02
			Sampling date / time	10-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00	18-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434174-006	ES2434174-007	ES2434174-008	ES2434174-009	ES2434174-010
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	----	72.9	71.7	74.7	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	75.4	73.0	74.2	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	----	32.0	34.8	34.2	----
Phenol-d6	13127-88-3	2	%	----	28.1	31.6	29.4	----
2-Chlorophenol-D4	93951-73-6	2	%	----	53.3	54.0	53.6	----
2.4.6-Tribromophenol	118-79-6	2	%	----	39.9	43.5	42.1	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	----	61.7	59.6	59.1	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	----	53.4	48.8	43.4	----
2-Fluorobiphenyl	321-60-8	2	%	----	71.1	66.4	64.0	----
Anthracene-d10	1719-06-8	2	%	----	79.4	78.3	82.2	----
4-Terphenyl-d14	1718-51-0	2	%	----	78.3	76.7	80.3	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	91.5	101	114	110	109
Toluene-D8	2037-26-5	2	%	90.2	99.9	118	103	104
4-Bromofluorobenzene	460-00-4	2	%	91.9	102	118	111	109
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	----	106	103	102	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	101	104	105	----
13C8-PFOA	----	0.02	%	----	104	100	105	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
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
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	64	140
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2434174**	Page	: 1 of 25
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 18-Oct-2024
Order number	: ----	Date Analysis Commenced	: 18-Oct-2024
C-O-C number	: ----	Issue Date	: 25-Oct-2024
Sampler	: NC		
Site	: ----		
Quote number	: ES24EPIENV0004		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **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: 6130958)									
EW2404824-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.45	8.47	0.2	0% - 20%
ES2434150-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.31	7.40	1.2	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 6135925)									
ES2434174-004	SMW_BH057_W	EA005-P: pH Value	----	0.01	pH Unit	6.97	7.01	0.6	0% - 20%
ES2434117-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.93	6.89	0.6	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6130955)									
EW2404824-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	25400	24900	1.6	0% - 20%
ES2434150-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	710	708	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6135923)									
EN2413213-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	145	141	2.3	0% - 20%
ES2434174-004	SMW_BH057_W	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11600	11500	0.6	0% - 20%
ES2434315-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	5430	5480	0.9	0% - 20%
ME2401663-007	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	433	433	0.0	0% - 20%
ES2434117-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	8200	8230	0.4	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6136145)									
EN2413182-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	924	868	6.2	0% - 20%
ES2433634-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1440	1410	2.4	0% - 20%
ES2434181-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1870	1840	1.9	0% - 20%
EA075: Redox Potential (QC Lot: 6130996)									
ES2434174-003	SMW_BH057_S	EA075: Redox Potential	----	0.1	mV	200	198	1.0	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EA075: Redox Potential (QC Lot: 6130996) - continued									
ES2434174-003	SMW_BH057_S	EA075: pH Redox	----	0.01	pH Unit	6.18	6.20	0.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6130957)									
EW2404824-005	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	200	200	0.0	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	12300	12300	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	12500	12500	0.0	0% - 20%
ES2434150-001	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	91	92	1.4	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	91	92	1.4	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6135924)									
EN2413213-001	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	30	29	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	30	29	0.0	0% - 20%
ES2434117-002	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	2700	2690	0.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	2700	2690	0.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6130894)									
ES2434174-007	SMW_BH004_S	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	50	49	2.6	0% - 20%
ES2433867-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1 (10)*	mg/L	<10	<10	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6130893)									
ES2434174-007	SMW_BH004_S	ED045G: Chloride	16887-00-6	1	mg/L	41	41	0.0	0% - 20%
ES2433867-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	11	12	0.0	0% - 50%
ED093F: Dissolved Major Cations (QC Lot: 6138037)									
EN2413182-013	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	47	46	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	10	11	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	28	28	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
EN2413182-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	96	96	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	390	387	0.8	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2950	2940	0.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	16	16	0.0	0% - 50%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6138035)									
EN2413182-003	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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6138035) - continued									
EN2413182-003	Anonymous	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
ES2433996-002	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	0.006	0.005	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6138039)									
ES2434174-008	SMW_WTP_BH02_W	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
EG020T: Total Metals by ICP-MS (QC Lot: 6138058)									
ES2434002-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.113	0.114	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.137	0.135	1.2	0% - 20%
EW2404824-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.019	0.019	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.039	0.038	2.8	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.027	0.025	5.1	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6138036)									
EN2413182-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 6138036) - continued									
EN2413182-014	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6138051)									
ES2434170-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2434300-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6140414)									
ES2434174-001	QC01	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6138178)									
ES2434116-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (1.00)*	mg/L	91.5	90.8	0.7	0% - 20%
ES2434124-007	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.04	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6138181)									
EW2404823-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	9.75	9.60	1.6	0% - 20%
ES2434174-004	SMW_BH057_W	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.67	2.67	0.0	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6130898)									
ES2434174-007	SMW_BH004_S	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.14	0.14	0.0	0% - 50%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6138180)									
EW2404823-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	2.56	2.66	3.9	0% - 20%
ES2434174-004	SMW_BH057_W	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: 6138185)									
ES2434174-003	SMW_BH057_S	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
EW2404818-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (5.0)*	mg/L	26.1	25.9	0.7	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6138184)									
ES2434174-003	SMW_BH057_S	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.07	0.06	0.0	No Limit
EW2404818-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.50)*	mg/L	3.12	2.80	10.5	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6130892)									
ES2434174-007	SMW_BH004_S	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
ES2433867-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6135386) - continued									
ES2434174-008	SMW_WTP_BH02_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6135386) - continued									
ES2433871-044	Anonymous	EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6135386) - continued									
ES2434174-008	SMW_WTP_BH02_W	EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6135386)									
ES2433871-044	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6135385)									
ES2433871-044	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2434174-008	SMW_WTP_BH02_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6135385)									
ES2433871-044	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6135385) - continued									
ES2434174-008	SMW_WTP_BH02_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6135385)									
ES2433871-044	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2434174-008	SMW_WTP_BH02_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 6132993)									
ES2434005-001	Anonymous	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
ES2434174-004	SMW_BH057_W	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 6132993) - continued									
ES2434174-004	SMW_BH057_W	EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6136887)									
ES2433996-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2433996-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6136887)									
ES2433996-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2433996-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6136887)									
ES2433996-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2433996-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6136887) - continued									
ES2433996-003	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6130958)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	99.6	99.2	101
EA005P: pH by PC Titrator (QCLot: 6135925)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6130955)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	99.7	89.9	110
				<1	2100 µS/cm	97.7	90.2	111
EA010P: Conductivity by PC Titrator (QCLot: 6135923)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	107	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6136145)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	95.8	87.0	109
				<10	293 mg/L	113	75.2	126
				<10	2410 mg/L	98.7	83.0	124
EA075: Redox Potential (QCLot: 6130996)								
EA075: Redox Potential	----	----	mV	----	234 mV	98.7	96.0	106
				----	300 mV	102	97.0	105
				----	86 mV	104	89.0	111
ED037P: Alkalinity by PC Titrator (QCLot: 6130957)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	105	80.0	128
ED037P: Alkalinity by PC Titrator (QCLot: 6135924)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	108	80.0	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6130894)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	82.0	122
				<1	500 mg/L	105	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6130893)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	99.2	80.9	127
				<1	1000 mg/L	94.5	80.9	127

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
ED093F: Dissolved Major Cations (QCLot: 6138037)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	103	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	103	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	104	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6138035)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.4	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	86.1	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.9	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	83.9	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.0	81.0	117
EG020F: Dissolved Metals by ICP-MS (QCLot: 6138039)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	88.9	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.3	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.1	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	85.3	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.1	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	85.4	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	89.0	81.0	117
EG020T: Total Metals by ICP-MS (QCLot: 6138058)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.9	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.7	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.9	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.6	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.7	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.6	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.4	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 6138036)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	101	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6138051)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.1	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 6140414)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	103	86.0	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6138178)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	90.0	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6138181)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	105	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6130898)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	93.9	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6138180)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6138185)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	79.6	69.0	123
				<0.1	1 mg/L	89.0	70.0	123
				<0.1	5 mg/L	90.8	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6138184)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	95.5	71.3	126
				<0.01	0.442 mg/L	103	71.3	126
				<0.01	1 mg/L	108	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6130892)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	100	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6131548)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	93.2	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 6131547)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	78.0	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	81.2	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	78.5	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	75.8	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	88.6	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	79.0	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	84.8	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	80.9	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	82.2	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	84.9	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	83.2	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	92.4	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	83.0	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	88.2	65.2	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6131547) - continued								
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	87.0	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	81.9	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	83.6	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	78.0	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	88.1	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	80.2	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	81.0	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6131547)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	78.2	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	81.0	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.3	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	78.6	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	84.0	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	82.7	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	82.2	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	86.6	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	80.4	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	80.9	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	82.4	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	83.4	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	103	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	83.2	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	91.6	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	83.3	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	83.2	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	79.0	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	82.9	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6135386)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	92.0	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	89.1	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	87.7	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	91.9	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	91.3	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	89.9	74.0	116

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6135386) - continued								
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	91.9	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	91.1	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	87.0	65.0	123
EP074B: Oxygenated Compounds (QCLot: 6135386)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.1	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	91.8	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	91.9	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	89.5	65.0	137
EP074C: Sulfonated Compounds (QCLot: 6135386)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	81.5	72.8	127
EP074D: Fumigants (QCLot: 6135386)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.3	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	87.0	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	85.7	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	83.8	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	90.1	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 6135386)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	74.6	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	82.8	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	81.3	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	86.8	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	85.0	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	87.2	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	85.0	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	75.7	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	82.3	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	88.2	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	89.4	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	83.4	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	84.3	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	81.6	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	92.1	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	86.8	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	89.4	73.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6135386) - continued								
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	95.6	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	91.1	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	88.0	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	87.5	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	91.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	94.2	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	95.8	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	96.5	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	86.9	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	86.6	66.4	136
EP074F: Halogenated Aromatic Compounds (QCLot: 6135386)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	89.7	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	90.8	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	92.9	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	92.4	73.0	119
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.0	67.0	123
EP074G: Trihalomethanes (QCLot: 6135386)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	88.9	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	85.9	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	85.3	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	84.4	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6131545)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.4	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	68.0	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	74.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	69.1	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	80.5	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	78.7	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	70.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	70.6	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	69.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	66.6	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	72.2	61.7	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6131545) - continued								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	71.1	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	66.0	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	68.2	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	67.9	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	67.4	59.1	118
EP075A: Phenolic Compounds (QCLot: 6131549)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	29.8	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	63.9	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	63.3	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	52.4	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	82.3	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	# 48.5	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	88.4	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	80.0	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	86.4	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	87.5	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	89.5	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	68.7	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 6131549)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	69.6	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	74.1	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	89.2	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	85.4	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	79.1	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	80.3	65.2	107
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	89.8	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	89.6	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	92.2	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	92.3	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	81.6	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	95.8	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	96.5	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	97.2	60.1	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 6131549) - continued								
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	# 115	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	95.7	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	85.1	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	96.0	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	95.1	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	93.5	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters (QCLot: 6131549)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	85.4	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	92.7	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	94.0	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	91.4	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	109	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	89.5	62.1	115
EP075D: Nitrosamines (QCLot: 6131549)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	53.3	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	67.3	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	60.3	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	58.4	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	80.6	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	77.0	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	75.3	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	75.6	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	96.1	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 6131549)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	# 35.1	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	75.6	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	74.7	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	83.0	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	84.6	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	72.0	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	# 35.4	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	78.2	40.0	96.0

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075E: Nitroaromatics and Ketones (QCLot: 6131549) - continued								
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	63.5	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	77.6	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	72.5	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	62.2	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	# 25.5	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	75.9	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	88.7	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	77.0	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	90.3	57.7	110
EP075F: Haloethers (QCLot: 6131549)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	70.2	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	78.7	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	78.1	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	74.3	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 6131549)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	59.7	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	59.2	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	61.9	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	58.1	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	64.2	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	68.8	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	60.4	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	# 123	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	79.2	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	75.7	65.7	110
EP075H: Anilines and Benzidines (QCLot: 6131549)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	65.1	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	58.6	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	81.6	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	57.2	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	80.1	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	56.7	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	86.0	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	# 54.1	60.3	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP075I: Organochlorine Pesticides (QCLot: 6131549)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	76.8	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	75.6	53.0	107
EP075: gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	10 µg/L	78.5	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	86.4	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	86.5	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	86.5	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	86.5	50.0	118
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	88.8	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	89.7	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	85.1	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	96.0	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	92.4	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	88.9	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	85.7	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	93.3	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 6131549)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	95.4	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	63.5	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	89.7	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	89.2	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	93.0	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	87.9	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	87.5	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	90.1	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	83.7	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	86.8	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	99.4	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6131546)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	83.2	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	80.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	75.0	58.3	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6135385)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.5	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6131546)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	83.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	79.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	53.5	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6135385)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.3	75.0	127
EP080: BTEXN (QCLot: 6135385)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	101	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	104	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	116	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	75.5	124
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6132993)								
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	96.3	82.0	136
EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	100 µg/L	104	65.0	147
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	92.6	83.0	137
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	99.2	75.0	143
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	97.4	76.0	140
EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	100 µg/L	98.0	76.0	144
EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	100 µg/L	96.5	77.0	139
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	96.8	77.0	141
EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	100 µg/L	99.0	75.0	143
EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	100 µg/L	96.5	78.0	140
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	108	69.2	139
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	92.0	70.0	144
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	89.3	70.0	145
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	95.5	77.0	145
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6136887)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	92.4	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	99.5	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	107	65.0	140

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6136887)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	103	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	111	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6136887)								
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	107	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	119	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	95.9	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				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: 6130894)							
ES2433867-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	110	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6130893)							
ES2433867-002	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	88.8	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6138035)							
EN2413182-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	90.4	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	90.2	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	89.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	88.7	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	92.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	86.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	90.2	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6138039)							
ES2434174-009	SMW_WTP_BH03A_W	EG020A-F: Arsenic	7440-38-2	1 mg/L	98.8	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	86.4	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	85.8	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	87.6	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	91.5	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6138039) - continued							
ES2434174-009	SMW_WTP_BH03A_W	EG020A-F: Nickel	7440-02-0	1 mg/L	86.9	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	87.0	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 6138058)							
ES2434174-002	RS01	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.6	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	102	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	107	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	107	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.1	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	95.7	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6138036)							
EN2413182-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	96.0	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6138051)							
ES2434170-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	94.9	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6140414)							
ES2434174-001	QC01	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	106	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6138178)							
ES2434116-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6138181)							
ES2434174-004	SMW_BH057_W	EK055G: Ammonia as N	7664-41-7	1 mg/L	99.5	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6130898)							
ES2434150-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	102	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6138180)							
ES2434174-004	SMW_BH057_W	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	105	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6138185)							
ES2434174-004	SMW_BH057_W	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	85.1	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6138184)							
ES2434174-004	SMW_BH057_W	EK067G: Total Phosphorus as P	----	1 mg/L	103	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6130892)							
ES2433867-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	107	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 6135386)							
ES2433871-044	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	112	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	109	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 6135386)							
ES2433871-044	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	108	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6135385)							
ES2433871-044	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6135385)							
ES2433871-044	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	96.8	70.0	130
EP080: BTEXN (QCLot: 6135385)							
ES2433871-044	Anonymous	EP080: Benzene	71-43-2	25 µg/L	98.1	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	109	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	108	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	116	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	119	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	107	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6132993)							
ES2434005-001	Anonymous	EP202-SL: Mecoprop	93-65-2	100 µg/L	115	75.0	143
		EP202-SL: MCPA	94-74-6	100 µg/L	113	76.0	140
		EP202-SL: 2.4-D	94-75-7	100 µg/L	110	77.0	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	109	77.0	141
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	111	78.0	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	94.8	70.0	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	93.5	70.0	145
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6136887)							
ES2433996-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	95.8	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	102	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	111	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6136887)							
ES2433996-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	106	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	110	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	108	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	116	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	105	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6136887)							
ES2433996-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	86.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	115	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	117	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	93.7	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2434174**	Page	: 1 of 19
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 18-Oct-2024
Site	: ----	Issue Date	: 25-Oct-2024
Sampler	: NC	No. of samples received	: 10
Order number	: ----	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds	QC-6131549-002	----	**2.4-Dimethylphenol**	105-67-9	48.5 %	50.0-94.0%	**Recovery less than lower control limit**
EP075B: Polynuclear Aromatic Hydrocarbons	QC-6131549-002	----	**7.12-Dimethylbenz(a)anthracene**	57-97-6	115 %	50.0-108%	**Recovery greater than upper control limit**
EP075E: Nitroaromatics and Ketones	QC-6131549-002	----	**2-Picoline**	109-06-8	35.1 %	41.0-109%	**Recovery less than lower control limit**
EP075E: Nitroaromatics and Ketones	QC-6131549-002	----	**1-Naphthylamine**	134-32-7	35.4 %	46.8-102%	**Recovery less than lower control limit**
EP075E: Nitroaromatics and Ketones	QC-6131549-002	----	**4-Aminobiphenyl**	92-67-1	25.5 %	60.1-112%	**Recovery less than lower control limit**
EP075G: Chlorinated Hydrocarbons	QC-6131549-002	----	**Hexachlorocyclopentadiene**	77-47-4	123 %	23.5-107%	**Recovery greater than upper control limit**
EP075H: Anilines and Benzidines	QC-6131549-002	----	**3.3`-Dichlorobenzidine**	91-94-1	54.1 %	60.3-119%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	ES2434116--001	Anonymous	**Ammonia as N**	7664-41-7	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							
SMW_BH057_S,	SMW_BH057_W	----	----	----	22-Oct-2024	17-Oct-2024	**5**
EA075: Redox Potential							
Clear Plastic Bottle - Natural							
SMW_BH057_S,	SMW_BH057_W	----	----	----	18-Oct-2024	17-Oct-2024	**1**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
SMW_BH057_S,	SMW_BH057_W	----	----	----	18-Oct-2024	17-Oct-2024	**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	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method		*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) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**22-Oct-2024**	17-Oct-2024	✘
Clear Plastic Bottle - Natural (EA005-P) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**18-Oct-2024**	18-Oct-2024	✓
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**22-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Natural (EA010-P) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**18-Oct-2024**	15-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**22-Oct-2024**	24-Oct-2024	✓
Clear Plastic Bottle - Natural (EA015H) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**22-Oct-2024**	25-Oct-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**18-Oct-2024**	17-Oct-2024	✘
Clear Plastic Bottle - Natural (EA075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**18-Oct-2024**	18-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	----	----	----	**22-Oct-2024**	31-Oct-2024	✓
Clear Plastic Bottle - Natural (ED037-P) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	----	----	----	**18-Oct-2024**	01-Nov-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	----	----	----	**19-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Natural (ED041G) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	----	----	----	**19-Oct-2024**	15-Nov-2024	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	----	----	----	**19-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Natural (ED045G) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	----	----	----	**19-Oct-2024**	15-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	----	----	----	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	----	----	----	**23-Oct-2024**	15-Nov-2024	✓
ED093F: SAR and Hardness Calculations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	----	----	----	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	----	----	----	**23-Oct-2024**	15-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC01, SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	----	----	----	**23-Oct-2024**	15-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	----	----	----	**23-Oct-2024**	16-Apr-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS01	**17-Oct-2024**	**23-Oct-2024**	15-Apr-2025	✓	**23-Oct-2024**	15-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS02	**18-Oct-2024**	**23-Oct-2024**	16-Apr-2025	✓	**23-Oct-2024**	16-Apr-2025	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	----	----	----	**24-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**24-Oct-2024**	15-Nov-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS01		**17-Oct-2024**	----	----	----	**24-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS02		**18-Oct-2024**	----	----	----	**24-Oct-2024**	15-Nov-2024	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	----	----	----	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**23-Oct-2024**	15-Nov-2024	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**23-Oct-2024**	15-Nov-2024	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**19-Oct-2024**	19-Oct-2024	✓
Clear Plastic Bottle - Natural (EK057G) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**19-Oct-2024**	20-Oct-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**23-Oct-2024**	15-Nov-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**23-Oct-2024**	14-Nov-2024	✓	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**23-Oct-2024**	15-Nov-2024	✓	**23-Oct-2024**	15-Nov-2024	✓

Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**23-Oct-2024**	14-Nov-2024	✓	**23-Oct-2024**	14-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**23-Oct-2024**	15-Nov-2024	✓	**23-Oct-2024**	15-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**19-Oct-2024**	19-Oct-2024	✓
Clear Plastic Bottle - Natural (EK071G) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**19-Oct-2024**	20-Oct-2024	✓
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	----	----	----	**18-Oct-2024**	17-Oct-2024	✘
Clear Plastic Bottle - Natural (EP025) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	----	----	----	**18-Oct-2024**	18-Oct-2024	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP066) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) SMW_BH057_S,	SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP075I: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP075J: Organophosphorus Pesticides								
Amber Glass Bottle - Unpreserved (EP075) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**22-Oct-2024**	30-Nov-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) QC01, SMW_BH057_S,	RS01, SMW_BH057_W	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**23-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_BH004_S, RS02	SMW_WTP_BH02_W,	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**23-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_WTP_BH03A_W		**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**24-Oct-2024**	30-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB01		**10-Oct-2024**	**22-Oct-2024**	24-Oct-2024	✓	**23-Oct-2024**	24-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC01		**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) RS01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Clear glass VOC vial - HCl (EP080) RS02		**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC01, RS01, SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	**21-Oct-2024**	24-Oct-2024	✓	**23-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_BH004_S, SMW_WTP_BH02_W, RS02	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**23-Oct-2024**	30-Nov-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_WTP_BH03A_W	**18-Oct-2024**	**21-Oct-2024**	25-Oct-2024	✓	**24-Oct-2024**	30-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB01	**10-Oct-2024**	**22-Oct-2024**	24-Oct-2024	✓	**23-Oct-2024**	24-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC01	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) RS01, SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Clear glass VOC vial - HCl (EP080) RS02	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TS01, TB01	**10-Oct-2024**	**22-Oct-2024**	24-Oct-2024	✓	**23-Oct-2024**	24-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC01	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) RS01, SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	**22-Oct-2024**	31-Oct-2024	✓	**23-Oct-2024**	31-Oct-2024	✓
Clear glass VOC vial - HCl (EP080) RS02	**18-Oct-2024**	**22-Oct-2024**	01-Nov-2024	✓	**23-Oct-2024**	01-Nov-2024	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Amber Bottle Unpreserved for Specialist Organics (EP202-SL) QC01, SMW_BH057_S, SMW_BH057_W	**17-Oct-2024**	**----**	----	----	**21-Oct-2024**	24-Oct-2024	✓
Amber Bottle Unpreserved for Specialist Organics (EP202-SL) SMW_BH004_S, SMW_WTP_BH02_W, SMW_WTP_BH03A_W	**18-Oct-2024**	**----**	----	----	**21-Oct-2024**	25-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**24-Oct-2024**	15-Apr-2025	✓	**25-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**24-Oct-2024**	16-Apr-2025	✓	**25-Oct-2024**	16-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**24-Oct-2024**	15-Apr-2025	✓	**25-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**24-Oct-2024**	16-Apr-2025	✓	**25-Oct-2024**	16-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**24-Oct-2024**	15-Apr-2025	✓	**25-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**24-Oct-2024**	16-Apr-2025	✓	**25-Oct-2024**	16-Apr-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) QC01, SMW_BH057_W	SMW_BH057_S,	**17-Oct-2024**	**24-Oct-2024**	15-Apr-2025	✓	**25-Oct-2024**	15-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_BH004_S, SMW_WTP_BH03A_W	SMW_WTP_BH02_W,	**18-Oct-2024**	**24-Oct-2024**	16-Apr-2025	✓	**25-Oct-2024**	16-Apr-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	20	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	7	62	**11.29**	**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	3	26	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**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	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	6	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	20	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	6	62	**9.68**	**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	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**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							
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	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**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
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	6	**50.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	29	**17.24**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	62	**6.45**	**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	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**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	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**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
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	29	**6.90**	**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 / *Analytical Methods*	*Method*	*Count QC*	*Count Regular*	***Rate (%) Actual***	***Rate (%) Expected***	*Evaluation*	*Quality Control Specification*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**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	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**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
Pesticides by GCMS	EP068	0	6	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	6	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	15	**6.67**	**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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)

Analytical Methods	Method	Matrix	Method Descriptions
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)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)
Volatile Organic Compounds	EP074	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. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with 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)
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In house: LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
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.

*Please send QC04 to Envirolab

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10
Project/Site:	SCL220037.10
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page	1 of 2
Number of Eskies:	2

Lab:	ALS Sydney
Lab Quote No:	ES24EPIENV0004 V3
Lab Batch No:	
Date Results Required:	Standard TAT (5 days)
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE

water/liquid

		60 mL	60 mL	40 mL	100 mL	500 mL	20 mL	60 mL	60 mL
		Clear Plastic Bottle - Nitric Acid; Filtered	Clear Plastic Bottle - NaOH Filtered	Amber VOC Vial - Sulfuric Acid	Amber Glass Bottle - Unpreserved	Clear Plastic Bottle - Natural	HDPE (no PTFE)	Clear Plastic Bottle - Sulfuric Acid	Opaque Plastic Bottle - HCl Preserved (Speciation)
TOTALS									

LAB ID	Sample ID	Date/Time	Matrix	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40)/BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
1	PM-BH14-W	21/10	W	✓	✓	✓	✓	✓	✓	✓	✓			
2	QC03	21/10			✓	✓	✓			✓				
~~- * QC04~~	~~QC04~~	~~21/10~~		✓	✓	✓	✓	✓	✓	✓				
3	PM-BH15-W	21/10		✓	✓	✓	✓	✓	✓	✓				
4	TB02	[illegible]										✓		
5	TS02	[illegible]										✓		
6	SMW_ENV010_W	21/10		✓	✓	✓	✓	✓	✓	✓				
7	SMW_ENV009_W	21/10		✓	✓	✓	✓	✓	✓	✓				
8	RS03	21/10		~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~			✓	✓
9	SMW_WTP_BH25_W	22/10		✓	✓	✓	✓	✓	✓	✓			~~✓~~	~~✓~~
10	SMW_WTP_BH25_S	22/10		✓	✓	✓	✓	✓	✓	✓				
11	GPLC-MW6_W			✓	✓	✓	✓	✓	✓	✓				
12	SMW_WTP_BH13-W			✓	✓	✓	✓	✓	✓	✓				
13	RS04												✓	✓
			TOTALS	0	0	0	0	0	0	0	0	0	0	0

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE 22/10

Received By: BULENT CESURCAN
NAME SIGNATURE DATE 23/10/24 12:40pm

Custody Seals Intact	Y	N
Samples Received Chilled	Y	N
Method of Shipment		

NOTES:

Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen

8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg

TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)

BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene

PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)

PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)

OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)

Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)

VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

Epic Environmental Pty Ltd ABN 54 169 579 275

1. Received as PM-MW14-W 21.10.24
3. Received as PM-MW15-W 21.10.24
4. Received as Trip Blank 10.10.24
5. Received as Trip Spike 3 10.10.24

Subcon / Forward Lab / Split WO ES2434774
Lab / Analysis: Envirolab, QC04
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2434766
Attached By PO / Internal Sheet:

H7

Environmental Division
Sydney
Work Order Reference
ES2434766

Telephone : + 61-2-8784 8555

www.epicenvironmental.com.au
labs@epicenvironmental.com.au

ES2434766

Herbicides

If possible. I understand you need 2x bottles but we only provide 1x.
Omit testing if not possible ~~for herb~~

Envirolab

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~
Project/Site:	SCL220037.10	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 2 of 2		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			50 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
	QC04	21/10	W										
			TOTALS										

TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients:** total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major ions:** Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
0	0	0	0	0	0	0	0	0	0	0

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE 22/10

Received By: BULENT CESUR...
NAME SIGNATURE DATE 23/10/24
12:40pm

Custody Seals Intact Y N
Samples Received Chilled Y N
Method of Shipment

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

*please send QC04 to Envirolab

Chain of Custody Record

epic ENVIRONMENTAL

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 2		Sample Disposal After:	
Number of Eskies: 2			

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients**: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major ions**: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
1	PM-BH14-W	21/10	W											✓	✓	✓	✓	✓	✓	✓				
2	~~QC03~~	21/10													✓	✓	✓	✓	✓	✓				
– *	QC04	21/10												✓	✓	✓	✓	✓	✓	✓				
3	PM-BH15-W	21/10																						
4	TB02	[illegible]																				✓		
5	TS02																					✓		
6	SMW_ENV010_W	21/10												✓	✓	✓	✓	✓	✓	✓				
7	SMW_ENV009_W	21/10												✓	✓	✓	✓	✓	✓	✓				
8	RS03	21/10.												WA	WA	WA	WA	WA	WA	WA			✓ WA	✓ WA
9	SMW_WTP_BH25_W	22/10												✓	✓	✓	✓	✓	✓	✓				
10	SMW_WTP_BH25_S	22/10												✓	✓	✓	✓	✓	✓	✓				
11	GHLC_MW6_W													✓	✓	✓	✓	✓	✓	✓				
12	SMW_WTP_BH13_W													✓	✓	✓	✓	✓	✓	✓				
13	RS04																						✓	✓
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Custody Seals Intact	Y	N	
Samples Received Chilled	Y	N	
Method of Shipment			

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE 22/10

Received By: BULENT CESURCAN
NAME SIGNATURE DATE 23/10/ 12:40pm

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7868)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

Subcon / Forward Lab / Split WO
Lab / Analysis: Envirolab, QC04
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2434766
Attached By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2434766

Telephone : + 61-2-8784 8555

www.epicenvironmental.com.au
labs@epicenvironmental.com.au

Epic Environmental Pty Ltd ABN 54 169 579 275

1. Received as PM-MW14-W 21.10.24
3. Received as PM-MW15-W 21.10.24
4. Received as Trip Blank 10.10.24
Received as Trip Spike 3 10.10.24

ES2434766

Herbicides

if possible. I understand you need 2x bottles but we only provide 1x. Omit testing if not possible ~~for both~~

Envirolab

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10	Lab:	~~ALS Sydney~~
Project/Site:	SCL220037.10	Lab Quote No:	~~ES24EPIENV0004 V3~~
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 2 of 2		Sample Disposal After:	
Number of Eskies:			

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	50 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients**: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major ions**: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
	QC04	21/10	W																					
													TOTALS	0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE DATE 22/10	Received By: NAME BURENT CESURETON SIGNATURE DATE 23/10/24 12:40pm	Custody Seals Intact	Y N
		Samples Received Chilled	Y N
		Method of Shipment	

NOTES:

Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen

8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg

TRH/TPH: total recoverable/petroleum+833 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)

BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene

PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)

PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)

OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)

Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)

VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2434766**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 4
Order number	: ----	Quote number	: ES2024EPIENV0004 (ES24EPIENV0004)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: SCL220037.10		
Sampler	: NC		

Dates

Date Samples Received	: 23-Oct-2024 12:40	Issue Date	: 25-Oct-2024
Client Requested Due Date	: 30-Oct-2024	Scheduled Reporting Date	: **30-Oct-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 11.5'C, 13.9'C, 13.2'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
- This is an updated SRN, to confirm sample QC04 forwarded to Envirolab for analysis.
- **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.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2434766-001	: [21-Oct-2024]	: PM-BH14-W - Received as PM-MW14-W
ES2434766-003	: [21-Oct-2024]	: PM-BH15-W - Received as PM-MW15-W
ES2434766-004	: [10-Oct-2024]	: TB02 - Received as Trip Blank
ES2434766-005	: [10-Oct-2024]	: TS02 - Received as Trip Spike 3

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 - EA005P pH (Auto Titrator)	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-16 TRH/BTEXN/PAH/OC/OP/PCB/8 Metals	WATER - W-23 minus BTEX SVOC/VOC without BTEX
ES2434766-001	21-Oct-2024 00:00	PM-BH14-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-002	21-Oct-2024 00:00	QC03		✓	✓			✓	✓
ES2434766-003	21-Oct-2024 00:00	PM-BH15-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-006	21-Oct-2024 00:00	SMW_ENV010_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-007	21-Oct-2024 00:00	SMW_ENV009_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-009	22-Oct-2024 00:00	SMW_WTP_BH25_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-010	22-Oct-2024 00:00	SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓
ES2434766-011	22-Oct-2024 00:00	GALC-MW16_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-012	22-Oct-2024 00:00	SMW_WTP_BH13_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA075 Redox Potential	WATER - EG005F Dissolved Metals by ICPAES	WATER - EG050G-F Dissolved Hexavalent Chromium	WATER - EP025 Dissolved Oxygen (DO)	WATER - EP231 PFAS - Short Suite (12 analytes)
ES2434766-001	21-Oct-2024 00:00	PM-BH14-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-002	21-Oct-2024 00:00	QC03				✓	✓		✓
ES2434766-003	21-Oct-2024 00:00	PM-BH15-W Received ...	✓	✓	✓	✓	✓	✓	✓
ES2434766-006	21-Oct-2024 00:00	SMW_ENV010_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-007	21-Oct-2024 00:00	SMW_ENV009_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-009	22-Oct-2024 00:00	SMW_WTP_BH25_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-010	22-Oct-2024 00:00	SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓
ES2434766-011	22-Oct-2024 00:00	GALC-MW16_W	✓	✓	✓	✓	✓	✓	✓
ES2434766-012	22-Oct-2024 00:00	SMW_WTP_BH13_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP080 BTEXN	WATER - EP202SL Phenoxyacetic Acid	WATER - W-05 TRH/BTEXN/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2434766-001	21-Oct-2024 00:00	PM-BH14-W Received ...		✓		
ES2434766-002	21-Oct-2024 00:00	QC03		✓		
ES2434766-003	21-Oct-2024 00:00	PM-BH15-W Received ...		✓		
ES2434766-004	10-Oct-2024 00:00	TB02 Received as Tr...				✓
ES2434766-005	10-Oct-2024 00:00	TS02 Received as Tr...	✓			
ES2434766-006	21-Oct-2024 00:00	SMW_ENV010_W		✓		
ES2434766-007	21-Oct-2024 00:00	SMW_ENV009_W		✓		
ES2434766-008	21-Oct-2024 00:00	RS03			✓	
ES2434766-009	22-Oct-2024 00:00	SMW_WTP_BH25_W		✓		
ES2434766-010	22-Oct-2024 00:00	SMW_WTP_BH25_S		✓		
ES2434766-011	22-Oct-2024 00:00	GALC-MW16_W		✓		
ES2434766-012	22-Oct-2024 00:00	SMW_WTP_BH13_W		✓		
ES2434766-013	22-Oct-2024 00:00	RS04			✓	

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 Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
PM-BH14-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
PM-BH15-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV010_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
EA075: Redox Potential							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
PM-BH14-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
PM-BH15-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV010_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
EP025: Oxygen - Dissolved							
GALC-MW16_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
PM-BH14-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
PM-BH15-W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV009_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_ENV010_W	Clear Plastic Bottle - Natural	----	21-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH13_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----
SMW_WTP_BH25_S	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----

SMW_WTP_BH25_W	Clear Plastic Bottle - Natural	----	22-Oct-2024	23-Oct-2024	✘	----	----

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

JONATHAN PICKERDEN

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

NATALIE CHANDRA

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2434766**	Page	: 1 of 48
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 23-Oct-2024 12:40
Order number	: ----	Date Analysis Commenced	: 25-Oct-2024
C-O-C number	: ----	Issue Date	: 30-Oct-2024 16:48
Sampler	: NC		
Site	: SCL220037.10		
Quote number	: ES24EPIENV0004		
No. of samples received	: 13		
No. of samples analysed	: 13		

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
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- EP202: Poor matrix spike recoveries for Picloram and Clopyralid due to matrix effects.
- 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.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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, SiO_2 and Fluoride to the Anions.
- EP074/EP080: Batch ES2434766-10 result has been confirmed by dilution and re-analysis.
- TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EP080: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- 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.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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)

Compound	CAS Number	LOR	Unit	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.83	----	5.98	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	465	----	755	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	311	----	504	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	30	----	70	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	235	----	259	----	----
pH Redox	----	0.01	pH Unit	6.95	----	5.91	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	98	----	41	----	----
Total Alkalinity as CaCO3	----	1	mg/L	98	----	41	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	72	----	147	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	46	----	138	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	4	----	10	----	----
Magnesium	7439-95-4	1	mg/L	5	----	11	----	----
Sodium	7440-23-5	1	mg/L	108	----	152	----	----
Potassium	7440-09-7	1	mg/L	1	----	2	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Phosphorus	7723-14-0	1	mg/L	<1	<1	<1	----	----
EG020F: Dissolved Metals by ICP-MS								

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
Sampling date / time				21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	**0.02**	----	----
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	**0.019**	**0.012**	**0.003**	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	**0.003**	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	**0.014**	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	**0.019**	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	**0.26**	----	----
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	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	**0.03**	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**4.12**	----	**0.29**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**4.12**	----	**0.29**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.4**	----	**0.7**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued								
^ Total Nitrogen as N	----	0.1	mg/L	**4.5**	----	**1.0**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.06**	----	**0.50**	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**5.04**	----	----	----	----
ø Total Anions	----	0.01	meq/L	----	----	**7.77**	----	----
ø Total Cations	----	0.01	meq/L	**5.33**	----	**8.07**	----	----
ø Ionic Balance	----	0.01	%	**2.82**	----	----	----	----
ø Ionic Balance	----	0.01	%	----	----	**1.86**	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**9.5**	----	**6.9**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	<4	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
Sampling date / time				21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP075E: Nitroaromatics and Ketones - Continued								
Isophorone	78-59-1	2	µg/L	<2	<2	<2	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	----	----
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	----	----
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	----	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
Sampling date / time				21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
				ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP075G: Chlorinated Hydrocarbons - Continued								
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	<2	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	----	----
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	<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	----
^ 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	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >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	**23**
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	**22**
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	**21**
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	**23**
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	**22**
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	**45**
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	**111**
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	**23**
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	----	----
2.4-DB	94-82-6	10	µg/L	<10	<10	<10	----	----
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	----	----
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	----	----
MCPA	94-74-6	10	µg/L	<10	<10	<10	----	----
2.4-DP	120-36-5	10	µg/L	<10	<10	<10	----	----
2.4-D	94-75-7	10	µg/L	<10	<10	<10	----	----
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	----	----
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	<10	----	----
2.4.5-T	93-76-5	10	µg/L	<10	<10	<10	----	----
MCPB	94-81-5	10	µg/L	<10	<10	<10	----	----
Picloram	1918-02-1	10	µg/L	<10	<10	<10	----	----
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	----	----
2.6-D	575-90-6	10	µg/L	<10	<10	<10	----	----
2.4.6-T	575-89-3	10	µg/L	<10	<10	<10	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.04**	**0.04**	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.11**	**0.12**	**0.01**	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.09**	**0.10**	**0.01**	----	----
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	**0.12**	**0.13**	**0.07**	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.10**	**0.11**	**0.06**	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	**0.04**	**0.05**	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.07**	**0.07**	**0.04**	----	----
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.20**	**0.22**	**0.02**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.57**	**0.62**	**0.19**	----	----
EP066S: PCB Surrogate								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	1	%	91.7	84.9	89.4	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	88.0	80.4	84.0	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	81.7	74.4	78.9	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	101	103	109	----	----
Toluene-D8	2037-26-5	5	%	91.5	99.0	105	----	----
4-Bromofluorobenzene	460-00-4	5	%	87.9	96.2	98.7	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	27.9	27.5	23.6	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	56.3	54.3	57.7	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	61.4	59.2	70.3	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	79.3	59.8	75.2	----	----
Anthracene-d10	1719-06-8	1.0	%	85.2	69.6	76.6	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	65.5	76.7	80.5	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	32.7	17.7	24.3	----	----
Phenol-d6	13127-88-3	2	%	14.7	11.7	15.0	----	----
2-Chlorophenol-D4	93951-73-6	2	%	47.6	39.0	45.3	----	----
2.4.6-Tribromophenol	118-79-6	2	%	54.4	49.7	57.3	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	62.4	46.4	52.5	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	47.2	41.8	45.4	----	----
2-Fluorobiphenyl	321-60-8	2	%	67.8	57.2	61.6	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-BH14-W Received as PM-MW14-W	QC03	PM-BH15-W Received as PM-MW15-W	TB02 Received as Trip Blank	TS02 Received as Trip Spike 3
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	10-Oct-2024 00:00	10-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-001	ES2434766-002	ES2434766-003	ES2434766-004	ES2434766-005
				Result	Result	Result	Result	Result
EP075T: Base/Neutral Extractable Surrogates - Continued								
Anthracene-d10	1719-06-8	2	%	73.0	66.5	68.7	----	----
4-Terphenyl-d14	1718-51-0	2	%	73.2	94.4	73.5	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	98.2	101	107	106	89.2
Toluene-D8	2037-26-5	2	%	86.3	94.9	100	106	91.8
4-Bromofluorobenzene	460-00-4	2	%	86.9	88.8	89.9	117	100
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	108	98.9	112	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	102	99.4	99.1	----	----
13C8-PFOA	----	0.02	%	101	102	100	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.27**	**7.11**	----	**5.29**	**7.37**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**1170**	**1470**	----	**21700**	**4300**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**739**	**850**	----	**27800**	**2600**
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**149**	**504**	----	**3310**	**892**
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**34.2**	**131**	----	**86.0**	**126**
pH Redox	----	0.01	pH Unit	**6.14**	**7.03**	----	**5.26**	**7.36**
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	**209**	**606**	----	**48**	**709**
Total Alkalinity as CaCO3	----	1	mg/L	**209**	**606**	----	**48**	**709**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**206**	**12**	----	**5330**	**367**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**161**	**201**	----	**6240**	**776**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**12**	**116**	----	**292**	**222**
Magnesium	7439-95-4	1	mg/L	**29**	**52**	----	**627**	**82**
Sodium	7440-23-5	1	mg/L	**214**	**182**	----	**4640**	**639**
Potassium	7440-09-7	1	mg/L	**28**	**16**	----	**114**	**27**
EG005(ED093)F: Dissolved Metals by ICP-AES								
Phosphorus	7723-14-0	1	mg/L	<1	<1	----	<1	<1
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	----	**0.68**	<0.01

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Arsenic	7440-38-2	0.001	mg/L	**0.013**	<0.001	<0.001	**0.010**	**0.005**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	**0.003**	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	**0.001**
Nickel	7440-02-0	0.001	mg/L	**0.006**	<0.001	<0.001	**0.030**	**0.013**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	**0.166**	**0.020**
Manganese	7439-96-5	0.001	mg/L	**1.01**	**0.716**	----	**1.02**	**0.258**
Iron	7439-89-6	0.05	mg/L	**49.5**	**17.8**	----	**815**	**2.98**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<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
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**3.86**	**6.96**	----	**1.46**	**8.91**
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	**0.09**	----	<0.01	**0.61**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	**0.09**	----	<0.01	**0.61**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**5.4**	**8.0**	----	**4.9**	**10.2**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**5.4**	**8.1**	----	**4.9**	**10.8**
EK067G: Total Phosphorus as P by Discrete Analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EK067G: Total Phosphorus as P by Discrete Analyser - Continued								
Total Phosphorus as P	----	0.01	mg/L	**0.15**	**0.46**	----	**0.09**	**0.08**
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	<0.01
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**13.0**	**18.0**	----	**288**	**43.7**
ø Total Cations	----	0.01	meq/L	**13.0**	**18.4**	----	**271**	**46.3**
ø Ionic Balance	----	0.01	%	**0.01**	**1.00**	----	**3.05**	**2.90**
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**4.6**	**5.0**	----	**4.8**	**5.8**
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	<5	<5
EP074E: Halogenated Aliphatic Compounds								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	----	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	----	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	----	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	----	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	<5	**479**
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	----	<5	<5
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	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	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	<0.5	----	<0.5	<0.5
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	----	<2	<2
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	----	<2	<2
2-Methylphenol	95-48-7	2	µg/L	<2	<2	----	<2	<2
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	----	<4	<4
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	----	<2	<2
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	----	<2	<2
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	----	<2	<2
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	----	<2	<2
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	----	<2	<2
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	----	<2	<2
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	----	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	----	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	----	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	----	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	----	<2	<2
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	----	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	----	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	----	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	----	<2	<2
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	----	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	----	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP075C: Phthalate Esters - Continued								
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	----	<10	<10
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	----	<2	<2
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	----	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	----	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	----	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	----	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	----	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	----	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	----	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	----	<4	<4
Methapyrilene	91-80-5	2	µg/L	<2	<2	----	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	----	<2	<2
Acetophenone	98-86-2	2	µg/L	<2	<2	----	<2	<2
Nitrobenzene	98-95-3	2	µg/L	<2	<2	----	<2	<2
Isophorone	78-59-1	2	µg/L	<2	<2	----	<2	<2
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	----	<4	<4
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	----	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	----	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	----	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	----	<2	<2
Azobenzene	103-33-3	2	µg/L	<2	<2	----	<2	<2
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	----	<2	<2
Phenacetin	62-44-2	2	µg/L	<2	<2	----	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	----	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP075E: Nitroaromatics and Ketones - Continued								
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	----	<2	<2
Pronamide	23950-58-5	2	µg/L	<2	<2	----	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	----	<2	<2
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	----	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	----	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	----	<2	<2
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	----	<2	<2
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	----	<2	<2
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	----	<2	**20**
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	----	<2	**31**
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	----	<2	<2
Hexachloroethane	67-72-1	2	µg/L	<2	<2	----	<2	<2
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	----	<2	**4**
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	----	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	----	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	----	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	----	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	----	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	----	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	----	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	----	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	----	<4	<4
Dibenzofuran	132-64-9	2	µg/L	<2	<2	----	<2	<2
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	----	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP075H: Anilines and Benzidines - Continued								
Carbazole	86-74-8	2	µg/L	<2	<2	----	<2	<2
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	----	<2	<2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	**450**
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	**280**
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	**60**
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	**340**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	**490**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	**490**
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	**320**
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	**320**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	**2**
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	**2**
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP202A: Phenoxyacetic Acid Herbicides by LCMS								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	----	<10	<10
2.4-DB	94-82-6	10	µg/L	<10	<10	----	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	----	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	----	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	----	<10	<10
2.4-DP	120-36-5	10	µg/L	<10	<10	----	<10	<10
2.4-D	94-75-7	10	µg/L	<10	<10	----	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	----	<10	<10
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	----	<10	<10
2.4.5-T	93-76-5	10	µg/L	<10	<10	----	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	----	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	----	<10	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	----	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	----	<10	<10
2.6-D	575-90-6	10	µg/L	<10	<10	----	<10	<10
2.4.6-T	575-89-3	10	µg/L	<10	<10	----	<10	<10
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.04**	**0.11**	----	<0.02	**0.10**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	**0.01**	----	<0.01	**0.09**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	----	<0.01	<0.01
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	----	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	----	<0.02	**0.02**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	----	<0.02	**0.06**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	----	<0.02	**0.02**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	----	<0.01	**0.03**
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	----	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	----	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	----	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	----	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	**0.01**	----	<0.01	**0.09**
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.04**	**0.12**	----	<0.01	**0.32**
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**79.9**	**91.1**	----	**93.8**	**84.8**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**75.9**	**85.6**	----	**85.2**	**78.8**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**70.0**	**80.5**	----	**82.3**	**78.7**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**111**	**110**	----	**114**	**100**
Toluene-D8	2037-26-5	5	%	**106**	**103**	----	**126**	**117**
4-Bromofluorobenzene	460-00-4	5	%	**99.9**	**98.2**	----	**122**	**109**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**25.9**	**27.0**	----	**25.7**	**25.9**
2-Chlorophenol-D4	93951-73-6	1.0	%	**46.7**	**55.0**	----	**56.1**	**48.6**
2.4.6-Tribromophenol	118-79-6	1.0	%	**59.3**	**59.4**	----	**66.0**	**65.2**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**58.1**	**74.3**	----	**74.6**	**69.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV010_W	SMW_ENV009_W	RS03	SMW_WTP_BH25_W	SMW_WTP_BH25_S
			Sampling date / time	21-Oct-2024 00:00	21-Oct-2024 00:00	21-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434766-006	ES2434766-007	ES2434766-008	ES2434766-009	ES2434766-010
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	71.3	77.7	----	77.6	76.1
4-Terphenyl-d14	1718-51-0	1.0	%	83.3	87.2	----	80.6	77.3
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	19.8	24.2	----	28.8	26.9
Phenol-d6	13127-88-3	2	%	15.1	14.7	----	19.3	14.6
2-Chlorophenol-D4	93951-73-6	2	%	38.1	44.7	----	51.0	40.6
2.4.6-Tribromophenol	118-79-6	2	%	41.6	43.2	----	50.1	45.9
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	38.7	54.6	----	56.6	45.2
1.2-Dichlorobenzene-D4	2199-69-1	2	%	31.8	47.7	----	48.8	45.7
2-Fluorobiphenyl	321-60-8	2	%	49.4	56.6	----	56.5	51.5
Anthracene-d10	1719-06-8	2	%	65.9	71.6	----	74.5	65.0
4-Terphenyl-d14	1718-51-0	2	%	66.3	74.5	----	75.9	69.8
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	109	107	85.1	88.5	77.4
Toluene-D8	2037-26-5	2	%	102	98.4	82.5	123	114
4-Bromofluorobenzene	460-00-4	2	%	91.5	90.0	95.1	128	106
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	109	109	----	95.1	103
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	101	102	----	98.3	99.9
13C8-PFOA	----	0.02	%	101	97.4	----	96.5	92.9

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.42	6.52	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	15000	5970	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	10400	3840	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	2250	708	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	138	38.7	----	----	----
pH Redox	----	0.01	pH Unit	7.43	6.52	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	766	174	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	766	174	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	272	344	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	5480	1730	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	227	61	----	----	----
Magnesium	7439-95-4	1	mg/L	408	135	----	----	----
Sodium	7440-23-5	1	mg/L	3140	1220	----	----	----
Potassium	7440-09-7	1	mg/L	63	9	----	----	----
EG005(ED093)F: Dissolved Metals by ICP-AES								
Phosphorus	7723-14-0	1	mg/L	<1	<1	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	*CAS Number*	*LOR*	*Unit*	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Arsenic	7440-38-2	0.001	mg/L	**0.002**	<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	<0.001	**0.002**	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	**0.004**	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	----	----
Manganese	7439-96-5	0.001	mg/L	**0.481**	**0.070**	----	----	----
Iron	7439-89-6	0.05	mg/L	**0.22**	**7.14**	----	----	----
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	----	----	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.63**	**0.08**	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<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	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.0**	**0.3**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**1.0**	**0.3**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EK067G: Total Phosphorus as P by Discrete Analyser - Continued								
Total Phosphorus as P	----	0.01	mg/L	**0.11**	**0.06**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**176**	**59.4**	----	----	----
ø Total Cations	----	0.01	meq/L	**183**	**67.4**	----	----	----
ø Ionic Balance	----	0.01	%	**2.10**	**6.31**	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**5.7**	**6.7**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
				ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				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	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	----	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	----	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	----	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	----	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	----	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	----	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	----	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	----	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	----	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP075C: Phthalate Esters - Continued								
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	----	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	----	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	----	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	----	----	----
Isophorone	78-59-1	2	µg/L	<2	<2	----	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	----	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	----	----	----
Azobenzene	103-33-3	2	µg/L	<2	<2	----	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	----	----	----
Phenacetin	62-44-2	2	µg/L	<2	<2	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP075E: Nitroaromatics and Ketones - Continued								
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	----	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	----	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	----	----	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	----	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	----	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	<2	----	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	----	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP075H: Anilines and Benzidines - Continued								
Carbazole	86-74-8	2	µg/L	<2	<2	----	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	----	----	----
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	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
				ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	----	----	----
2.4-DB	94-82-6	10	µg/L	<10	<10	----	----	----
Dicamba	1918-00-9	10	µg/L	<10	<10	----	----	----
Mecoprop	93-65-2	10	µg/L	<10	<10	----	----	----
MCPA	94-74-6	10	µg/L	<10	<10	----	----	----
2.4-DP	120-36-5	10	µg/L	<10	<10	----	----	----
2.4-D	94-75-7	10	µg/L	<10	<10	----	----	----
Triclopyr	55335-06-3	10	µg/L	<10	<10	----	----	----
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	----	----	----
2.4.5-T	93-76-5	10	µg/L	<10	<10	----	----	----
MCPB	94-81-5	10	µg/L	<10	<10	----	----	----
Picloram	1918-02-1	10	µg/L	<10	<10	----	----	----
Clopyralid	1702-17-6	10	µg/L	<10	<10	----	----	----
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	----	----	----
2.6-D	575-90-6	10	µg/L	<10	<10	----	----	----
2.4.6-T	575-89-3	10	µg/L	<10	<10	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	**0.01**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	----	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	**0.01**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	**0.01**	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**92.8**	**93.6**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**88.5**	**85.2**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**82.8**	**80.7**	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**104**	**93.6**	----	----	----
Toluene-D8	2037-26-5	5	%	**112**	**104**	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	**118**	**107**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**22.7**	**22.9**	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**53.3**	**54.5**	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**50.0**	**65.6**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**72.0**	**73.8**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	GALC-MW16_W	SMW_WTP_BH13_W	RS04	----	----
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434766-011	ES2434766-012	ES2434766-013	--------	--------
				Result	Result	Result	----	----
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	70.5	79.1	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	83.3	86.2	----	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	22.7	25.3	----	----	----
Phenol-d6	13127-88-3	2	%	15.8	16.1	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%	46.3	46.1	----	----	----
2.4.6-Tribromophenol	118-79-6	2	%	49.1	43.2	----	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	52.7	50.5	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	48.6	47.3	----	----	----
2-Fluorobiphenyl	321-60-8	2	%	59.0	54.0	----	----	----
Anthracene-d10	1719-06-8	2	%	70.5	72.7	----	----	----
4-Terphenyl-d14	1718-51-0	2	%	76.4	75.9	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	80.6	72.1	104	----	----
Toluene-D8	2037-26-5	2	%	109	101	100	----	----
4-Bromofluorobenzene	460-00-4	2	%	115	105	114	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	113	111	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	103	106	----	----	----
13C8-PFOA	----	0.02	%	102	101	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
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
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	64	140
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2434766**	Page	: 1 of 24
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 23-Oct-2024
Order number	: ----	Date Analysis Commenced	: 25-Oct-2024
C-O-C number	: ----	Issue Date	: 30-Oct-2024
Sampler	: NC		
Site	: SCL220037.10		
Quote number	: ES24EPIENV0004		
No. of samples received	: 13		
No. of samples analysed	: 13		

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
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)F: Dissolved Metals by ICP-AES (QC Lot: 6146680)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EG005F: Phosphorus	7723-14-0	1	mg/L	<1	<1	0.0	No Limit
EA005P: pH by PC Titrator (QC Lot: 6148216)									
ES2434769-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.90	7.03	1.9	0% - 20%
ES2434766-003	PM-BH15-W Received as PM-MW15-W	EA005-P: pH Value	----	0.01	pH Unit	5.98	5.98	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6148215)									
EN2413611-009	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1990	2010	1.0	0% - 20%
ES2434769-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	291	286	1.8	0% - 20%
ES2434906-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	514	513	0.2	0% - 20%
ES2434766-003	PM-BH15-W Received as PM-MW15-W	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	755	756	0.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6148388)									
EN2413486-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1280	1250	1.9	0% - 20%
ES2434525-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	15	15	0.0	No Limit
ES2434689-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	6100	6130	0.4	0% - 20%
ES2434766-012	SMW_WTP_BH13_W	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	3840	3800	0.9	0% - 20%
EA075: Redox Potential (QC Lot: 6150063)									
ES2434591-001	Anonymous	EA075: Redox Potential	----	0.1	mV	142	149	4.7	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.78	7.80	0.3	0% - 20%
ES2434685-001	Anonymous	EA075: Redox Potential	----	0.1	mV	219	220	0.7	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.38	7.39	0.1	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
ED037P: Alkalinity by PC Titrator (QC Lot: 6148213)									
EN2413605-001	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	82	83	1.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	82	83	1.9	0% - 20%
EN2413611-009	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	257	258	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	257	258	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6148217)									
ES2434906-005	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	107	106	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	107	106	0.0	0% - 20%
ES2434766-003	PM-BH15-W Received as PM-MW15-W	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	41	40	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	41	40	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6146983)									
ES2434838-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	199	199	0.0	0% - 20%
ES2434766-001	PM-BH14-W Received as PM-MW14-W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	72	68	5.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 6146984)									
ES2434838-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	433	430	0.7	0% - 20%
ES2434766-001	PM-BH14-W Received as PM-MW14-W	ED045G: Chloride	16887-00-6	1	mg/L	46	46	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 6146679)									
ES2434785-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	13	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	26	26	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	7	7	0.0	No Limit
ES2434766-001	PM-BH14-W Received as PM-MW14-W	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	108	108	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6146677)									
ES2434665-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6146677) - continued									
ES2434665-003	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	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: Manganese	7439-96-5	0.001	mg/L	0.065	0.064	0.0	0% - 20%
		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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.10	0.10	0.0	0% - 50%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2434665-011	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: Manganese	7439-96-5	0.001	mg/L	0.599	0.603	0.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.10	0.09	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6146682)									
ES2434766-011	GALC-MW16_W	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	0.002	0.002	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: Manganese	7439-96-5	0.001	mg/L	0.481	0.479	0.3	0% - 20%
		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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.22	0.21	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6150958)									
EN2413257-001	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	<0.001	<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	0.305	0.342	11.3	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.009	0.010	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.015	0.017	10.2	0% - 50%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6150958) - continued									
EN2413257-001	Anonymous	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	0.071	0.078	10.4	0% - 50%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.04	0.04	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2434766-008	RS03	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: Manganese	7439-96-5	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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6146678)									
ES2434665-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2434665-010	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6146681)									
ES2434766-012	SMW_WTP_BH13_W	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6150959)									
ES2434766-008	RS03	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6150576)									
EN2413483-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EN2413483-010	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6147744)									
ES2434473-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.39	0.39	0.0	0% - 20%
ES2434766-006	SMW_ENV010_W	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	3.86	3.86	0.0	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6146985)									
ES2434838-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434766-001	PM-BH14-W Received as PM-MW14-W	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: 6147745)									
ES2434473-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.16	0.16	0.0	0% - 50%
ES2434766-006	SMW_ENV010_W	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: 6147741)									
ES2434473-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.1	1.1	0.0	0% - 50%
ES2434766-007	SMW_ENV009_W	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	8.0	7.8	2.4	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6147740)									
ES2434473-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.14	0.11	21.4	0% - 50%
ES2434766-007	SMW_ENV009_W	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.46	0.46	0.0	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6146982)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6146725) - continued									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6146725)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6146722)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6146722) - continued									
ES2434554-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2434840-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6146724)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6146722)									
ES2434554-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2434840-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6146724)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6146722)									
ES2434554-004	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2434840-006	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP080: BTEXN (QC Lot: 6146724)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 6147983)									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 6147983) - continued									
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6146536)									
ES2434466-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2434538-012	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6146536)									
ES2434466-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2434538-012	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6146536)									
ES2434466-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6146536) - continued									
ES2434466-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2434538-012	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)F: Dissolved Metals by ICP-AES (QCLot: 6146680)								
EG005F: Phosphorus	7723-14-0	1	mg/L	<1	----	----	----	----
EA005P: pH by PC Titrator (QCLot: 6148216)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6148215)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	93.6	89.9	110
				<1	2100 µS/cm	93.9	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6148388)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	91.4	87.0	109
				<10	293 mg/L	106	75.2	126
				<10	2410 mg/L	96.6	83.0	124
EA075: Redox Potential (QCLot: 6150063)								
EA075: Redox Potential	----	----	mV	----	234 mV	99.1	96.0	106
				----	300 mV	100	97.0	105
				----	86 mV	108	89.0	111
ED037P: Alkalinity by PC Titrator (QCLot: 6148213)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	109	80.0	128
ED037P: Alkalinity by PC Titrator (QCLot: 6148217)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	109	80.0	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6146983)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	94.6	82.0	122
				<1	500 mg/L	99.1	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6146984)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	101	80.9	127
				<1	1000 mg/L	102	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6146679)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	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	102	82.0	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED093F: Dissolved Major Cations (QCLot: 6146679) - continued								
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	107	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6146677)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	92.6	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.3	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.4	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.0	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.2	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.7	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	88.7	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 6146682)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	88.4	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.0	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.5	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	86.1	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.5	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.4	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.8	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	93.8	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 6150958)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	96.6	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.3	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.3	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.9	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.7	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.1	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.5	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.1	82.0	112

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 6146678)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	105	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 6146681)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	85.9	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 6150959)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	83.0	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 6150576)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	93.9	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6147744)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6146985)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6147745)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	100	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6147741)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	90.4	69.0	123
				<0.1	1 mg/L	105	70.0	123
				<0.1	5 mg/L	90.9	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6147740)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	99.3	71.3	126
				<0.01	0.442 mg/L	96.8	71.3	126
				<0.01	1 mg/L	98.7	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6146982)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	101	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6146651)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	92.6	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 6146649)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	80.2	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	83.1	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	79.0	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	80.1	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	91.8	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	78.0	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	80.1	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	81.6	67.1	107

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6146649) - continued								
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	79.4	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	83.2	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	80.4	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	84.0	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	82.6	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	101	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	86.9	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	81.2	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	82.4	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	76.1	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	88.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	86.7	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	87.7	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6146649)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	76.1	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	80.4	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.8	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	80.8	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	85.8	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	83.4	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	77.8	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	82.9	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	79.9	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	78.6	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	95.0	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	81.8	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	101	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	80.2	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	101	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	80.9	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	77.8	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	86.6	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	72.3	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6146725)								

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6146725) - continued								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	75.7	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	76.2	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	75.6	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	74.5	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	73.9	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	77.4	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	75.7	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	76.6	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	78.7	65.0	123
EP074B: Oxygenated Compounds (QCLot: 6146725)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	83.0	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	88.9	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	83.0	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	87.5	65.0	137
EP074C: Sulfonated Compounds (QCLot: 6146725)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	84.8	72.8	127
EP074D: Fumigants (QCLot: 6146725)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	79.0	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	79.7	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	81.6	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	79.4	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	83.1	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 6146725)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	75.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	80.6	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	81.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	82.1	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	81.7	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	79.3	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	78.8	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	80.8	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	82.0	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	82.2	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	83.2	77.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6146725) - continued								
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	79.1	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	77.5	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	75.8	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	83.9	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	78.7	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	79.5	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	83.6	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	83.7	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	78.2	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	77.4	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	80.5	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	74.6	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	81.8	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	79.8	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	75.0	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	76.3	66.4	136
EP074F: Halogenated Aromatic Compounds (QCLot: 6146725)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	81.3	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	76.8	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	76.0	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	75.2	73.0	119
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	84.2	67.0	123
EP074G: Trihalomethanes (QCLot: 6146725)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	80.8	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	81.5	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	79.3	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	79.4	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6146650)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.0	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	76.9	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	66.3	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	75.1	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	80.0	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	87.3	64.3	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6146650) - continued								
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	81.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	92.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	83.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	89.3	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	69.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	92.3	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	70.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	85.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	97.6	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	90.5	59.1	118
EP075A: Phenolic Compounds (QCLot: 6146652)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	30.3	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	59.2	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	53.2	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	52.4	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	59.6	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	# 44.8	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	# 60.8	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	70.2	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	70.0	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	70.4	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	84.3	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	67.5	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 6146652)								
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	65.7	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	74.7	60.6	106
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	87.6	59.7	110
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	70.4	50.0	108
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	72.3	60.1	110
EP075C: Phthalate Esters (QCLot: 6146652)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	89.2	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	81.0	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	78.4	68.4	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075C: Phthalate Esters (QCLot: 6146652) - continued								
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	87.2	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	76.6	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	75.1	62.1	115
EP075D: Nitrosamines (QCLot: 6146652)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	51.8	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	# 60.5	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	49.8	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	53.5	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	68.7	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	63.9	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	65.3	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	76.6	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	63.8	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 6146652)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	# 38.1	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	69.2	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	70.4	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	# 66.0	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	85.5	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	75.0	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	83.1	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	80.1	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	72.6	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	74.4	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	76.2	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	67.0	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	# 43.6	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	83.3	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	75.6	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	83.8	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	90.3	57.7	110
EP075F: Haloethers (QCLot: 6146652)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	# 67.0	69.1	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075F: Haloethers (QCLot: 6146652) - continued								
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	# 62.2	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	69.2	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	74.4	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 6146652)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	49.6	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	47.7	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	51.8	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	48.6	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	48.9	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	58.1	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	56.8	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	52.1	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	# 61.5	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	77.7	65.7	110
EP075H: Anilines and Benzidines (QCLot: 6146652)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	# 34.1	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	62.6	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	77.1	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	64.9	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	72.2	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	69.1	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	72.2	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	83.9	60.3	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6146648)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	71.1	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	86.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	95.5	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6146722)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.9	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6146724)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	92.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6146648)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	74.0	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	104	57.8	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6146648) - continued								
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	74.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6146722)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	80.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6146724)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	92.0	75.0	127
EP080: BTEXN (QCLot: 6146722)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	114	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	111	75.5	124
EP080: BTEXN (QCLot: 6146724)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.4	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	120	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	75.5	124
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6147983)								
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	118	82.0	136
EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	100 µg/L	116	65.0	147
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	116	83.0	137
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	117	75.0	143
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	118	76.0	140
EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	100 µg/L	118	76.0	144
EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	100 µg/L	119	77.0	139
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	114	77.0	141
EP202-SL: Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	100 µg/L	117	75.0	143
EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	100 µg/L	118	78.0	140
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	116	69.2	139
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	113	70.0	144
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	112	70.0	145

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6147983) - continued								
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	117	77.0	145
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146536)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	109	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	103	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146536)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	117	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	117	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	115	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146536)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	116	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	104	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	81.3	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6146983)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6146984)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	ED045G: Chloride	16887-00-6	250 mg/L	93.1	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6146677)							
ES2434665-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	94.3	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	89.0	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	89.7	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	94.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	89.4	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	88.7	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6146677) - continued							
ES2434665-002	Anonymous	EG020A-F: Nickel	7440-02-0	1 mg/L	89.6	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	91.8	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6146682)							
ES2434766-012	SMW_WTP_BH13_W	EG020A-F: Arsenic	7440-38-2	1 mg/L	95.5	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	86.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	92.8	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	101	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	83.3	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	87.0	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	94.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	94.4	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6150958)							
EN2413257-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	87.7	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	88.4	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	90.6	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	98.7	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	91.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	88.9	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	90.7	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6146678)							
ES2434665-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	95.9	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6146681)							
ES2434766-011	GALC-MW16_W	EG035F: Mercury	7439-97-6	0.01 mg/L	102	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6150959)							
EP2415509-002	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	96.5	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6150576)							
EN2413483-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	116	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6147744)							
ES2434473-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	124	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6146985)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	108	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6147745)							
ES2434473-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	95.0	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6147741)							
ES2434473-002	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6147741) - continued							
ES2434473-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	89.6	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6147740)							
ES2434473-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	93.7	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6146982)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	104	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 6146725)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	81.2	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	102	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 6146725)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP074: Chlorobenzene	108-90-7	25 µg/L	98.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6146722)							
ES2434554-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6146724)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP080: C6 - C9 Fraction	----	325 µg/L	90.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6146722)							
ES2434554-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	92.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6146724)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	85.4	70.0	130
EP080: BTEXN (QCLot: 6146722)							
ES2434554-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	109	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	110	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	119	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	109	70.0	130
EP080: BTEXN (QCLot: 6146724)							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP080: Benzene	71-43-2	25 µg/L	87.5	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	93.8	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	93.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	105	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.2	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	84.4	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6147983)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 6147983) - continued							
ES2434766-001	PM-BH14-W Received as PM-MW14-W	EP202-SL: Mecoprop	93-65-2	100 µg/L	108	75.0	143
		EP202-SL: MCPA	94-74-6	100 µg/L	107	76.0	140
		EP202-SL: 2.4-D	94-75-7	100 µg/L	106	77.0	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	104	77.0	141
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	108	78.0	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	# 49.7	70.0	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 47.9	70.0	145
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6146536)							
ES2434466-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	117	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	97.5	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	123	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6146536)							
ES2434466-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	98.2	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	126	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	117	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	107	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	114	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6146536)							
ES2434466-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	92.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	109	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	116	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	79.8	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2434766**	Page	: 1 of 20
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 23-Oct-2024
Site	: SCL220037.10	Issue Date	: 30-Oct-2024
Sampler	: NC	No. of samples received	: 13
Order number	: ----	No. of samples analysed	: 13

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds	QC-6146652-002	----	**2.4-Dimethylphenol**	105-67-9	44.8 %	50.0-94.0%	**Recovery less than lower control limit**
EP075A: Phenolic Compounds	QC-6146652-002	----	**2.4-Dichlorophenol**	120-83-2	60.8 %	61.9-109%	**Recovery less than lower control limit**
EP075D: Nitrosamines	QC-6146652-002	----	**N-Nitrosodiethylamine**	55-18-5	60.5 %	60.6-113%	**Recovery less than lower control limit**
EP075E: Nitroaromatics and Ketones	QC-6146652-002	----	**2-Picoline**	109-06-8	38.1 %	41.0-109%	**Recovery less than lower control limit**
EP075E: Nitroaromatics and Ketones	QC-6146652-002	----	**Isophorone**	78-59-1	66.0 %	67.6-111%	**Recovery less than lower control limit**
EP075E: Nitroaromatics and Ketones	QC-6146652-002	----	**4-Aminobiphenyl**	92-67-1	43.6 %	60.1-112%	**Recovery less than lower control limit**
EP075F: Haloethers	QC-6146652-002	----	**Bis(2-chloroethyl) ether**	111-44-4	67.0 %	69.1-112%	**Recovery less than lower control limit**
EP075F: Haloethers	QC-6146652-002	----	**Bis(2-chloroethoxy) methane**	111-91-1	62.2 %	66.2-111%	**Recovery less than lower control limit**
EP075G: Chlorinated Hydrocarbons	QC-6146652-002	----	**Pentachlorobenzene**	608-93-5	61.5 %	64.5-107%	**Recovery less than lower control limit**
EP075H: Anilines and Benzidines	QC-6146652-002	----	**Aniline**	62-53-3	34.1 %	50.0-104%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2434766--001	PM-BH14-W Received as PM-I	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP202A: Phenoxyacetic Acid Herbicides by LCMS	ES2434766--001	PM-BH14-W Received as PM-I	**Picloram**	1918-02-1	49.7 %	70.0-144%	**Recovery less than lower data quality objective**
EP202A: Phenoxyacetic Acid Herbicides by LCMS	ES2434766--001	PM-BH14-W Received as PM-I	**Clopyralid**	1702-17-6	47.9 %	70.0-145%	**Recovery less than lower data quality objective**

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 PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	----	----	----	28-Oct-2024	21-Oct-2024	**7**
Clear Plastic Bottle - Natural SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	----	----	----	28-Oct-2024	22-Oct-2024	**6**
EA075: Redox Potential							
Clear Plastic Bottle - Natural PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	----	----	----	28-Oct-2024	21-Oct-2024	**7**
Clear Plastic Bottle - Natural SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	----	----	----	28-Oct-2024	22-Oct-2024	**6**

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
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	----	----	----	25-Oct-2024	23-Oct-2024	**2**
Clear Plastic Bottle - Natural							
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	----	----	----	25-Oct-2024	24-Oct-2024	**1**
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural							
PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	----	----	----	25-Oct-2024	23-Oct-2024	**2**
Clear Plastic Bottle - Natural							
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	----	----	----	25-Oct-2024	24-Oct-2024	**1**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	----	----	----	25-Oct-2024	21-Oct-2024	**4**
Clear Plastic Bottle - Natural							
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	----	----	----	25-Oct-2024	22-Oct-2024	**3**
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid							
TB02 - Received as Trip Blank		25-Oct-2024	24-Oct-2024	**1**	26-Oct-2024	24-Oct-2024	**2**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid							
TB02 - Received as Trip Blank		25-Oct-2024	24-Oct-2024	**1**	26-Oct-2024	24-Oct-2024	**2**
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid							
TB02 - Received as Trip Blank,	TS02 - Received as Trip Spike 3	25-Oct-2024	24-Oct-2024	**1**	26-Oct-2024	24-Oct-2024	**2**

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	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Control Samples (LCS)						
Dissolved Metals by ICP-AES	EG005F	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Dissolved Metals by ICP-AES	EG005F	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	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) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	21-Oct-2024	✘
Clear Plastic Bottle - Natural (EA005-P) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**28-Oct-2024**	22-Oct-2024	✘
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Natural (EA010-P) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**28-Oct-2024**	19-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	28-Oct-2024	✓
Clear Plastic Bottle - Natural (EA015H) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**28-Oct-2024**	29-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**25-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**25-Oct-2024**	19-Nov-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**28-Oct-2024**	21-Oct-2024	×
Clear Plastic Bottle - Natural (EA075) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**28-Oct-2024**	22-Oct-2024	×
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**28-Oct-2024**	04-Nov-2024	✓
Clear Plastic Bottle - Natural (ED037-P) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**28-Oct-2024**	05-Nov-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**25-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Natural (ED041G) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**25-Oct-2024**	19-Nov-2024	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**25-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Natural (ED045G) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**25-Oct-2024**	19-Nov-2024	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**25-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**25-Oct-2024**	19-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG005(ED093)F: Dissolved Metals by ICP-AES							
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F) PM-BH14-W - Received as PM-MW14-W, QC03, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**25-Oct-2024**	19-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG005F) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**25-Oct-2024**	20-Apr-2025	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) PM-BH14-W - Received as PM-MW14-W, QC03, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**25-Oct-2024**	19-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) RS03	**21-Oct-2024**	**----**	----	----	**29-Oct-2024**	19-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**25-Oct-2024**	20-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) RS04	**22-Oct-2024**	**----**	----	----	**29-Oct-2024**	20-Apr-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) PM-BH14-W - Received as PM-MW14-W, QC03, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RS03	**21-Oct-2024**	**----**	----	----	**30-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**28-Oct-2024**	19-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RS04	**22-Oct-2024**	**----**	----	----	**30-Oct-2024**	19-Nov-2024	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) PM-BH14-W - Received as PM-MW14-W, QC03, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**28-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**28-Oct-2024**	19-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation* *Date extracted*	*Due for extraction*	*Evaluation*	*Analysis* *Date analysed*	*Due for analysis*	*Evaluation*
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**26-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**26-Oct-2024**	19-Nov-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**25-Oct-2024**	23-Oct-2024	×
Clear Plastic Bottle - Natural (EK057G) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**25-Oct-2024**	24-Oct-2024	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**26-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**26-Oct-2024**	19-Nov-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**27-Oct-2024**	18-Nov-2024	✓	**27-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**27-Oct-2024**	19-Nov-2024	✓	**27-Oct-2024**	19-Nov-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**27-Oct-2024**	18-Nov-2024	✓	**27-Oct-2024**	18-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**27-Oct-2024**	19-Nov-2024	✓	**27-Oct-2024**	19-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**----**	----	----	**25-Oct-2024**	23-Oct-2024	×
Clear Plastic Bottle - Natural (EK071G) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**----**	----	----	**25-Oct-2024**	24-Oct-2024	×

Matrix: **WATER**

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Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025) PM-BH14-W - Received as PM-MW14-W, SMW_ENV010_W,	PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**25-Oct-2024**	21-Oct-2024	×
Clear Plastic Bottle - Natural (EP025) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**25-Oct-2024**	22-Oct-2024	×
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP066) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP068) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓

Matrix: **WATER**

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Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓

Matrix: **WATER**

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Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) PM-BH14-W - Received as PM-MW14-W,	QC03	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH25_W,	SMW_WTP_BH25_S	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	21-Oct-2024	25-Oct-2024	04-Nov-2024	✓	26-Oct-2024	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP074) GALC-MW16_W,	SMW_WTP_BH13_W	22-Oct-2024	25-Oct-2024	05-Nov-2024	✓	26-Oct-2024	05-Nov-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	21-Oct-2024	28-Oct-2024	28-Oct-2024	✓	29-Oct-2024	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	22-Oct-2024	28-Oct-2024	29-Oct-2024	✓	29-Oct-2024	07-Dec-2024	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	21-Oct-2024	28-Oct-2024	28-Oct-2024	✓	29-Oct-2024	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	22-Oct-2024	28-Oct-2024	29-Oct-2024	✓	29-Oct-2024	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075)								
PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075)								
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075)								
PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075)								
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075)								
PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075)								
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075)								
PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075)								
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075)								
PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075)								
SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W,	QC03, SMW_ENV010_W, RS03	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_WTP_BH25_W, GALC-MW16_W, RS04	SMW_WTP_BH25_S, SMW_WTP_BH13_W,	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB02 - Received as Trip Blank		**10-Oct-2024**	**25-Oct-2024**	24-Oct-2024	×	**26-Oct-2024**	24-Oct-2024	×
Amber VOC Vial - Sulfuric Acid (EP080) PM-BH14-W - Received as PM-MW14-W, RS03	QC03,	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_WTP_BH25_W, RS04	SMW_WTP_BH25_S,	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	SMW_ENV010_W,	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) GALC-MW16_W,	SMW_WTP_BH13_W	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method ***Container** / Client Sample ID(s)*	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) PM-BH14-W - Received as PM-MW14-W, QC03, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W, RS03	**21-Oct-2024**	**28-Oct-2024**	28-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W, RS04	**22-Oct-2024**	**28-Oct-2024**	29-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB02 - Received as Trip Blank	**10-Oct-2024**	**25-Oct-2024**	24-Oct-2024	✗	**26-Oct-2024**	24-Oct-2024	✗
Amber VOC Vial - Sulfuric Acid (EP080) PM-BH14-W - Received as PM-MW14-W, QC03, RS03	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_WTP_BH25_W, SMW_WTP_BH25_S, RS04	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB02 - Received as Trip Blank, TS02 - Received as Trip Spike 3	**10-Oct-2024**	**25-Oct-2024**	24-Oct-2024	✗	**26-Oct-2024**	24-Oct-2024	✗
Amber VOC Vial - Sulfuric Acid (EP080) PM-BH14-W - Received as PM-MW14-W, QC03, RS03	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_WTP_BH25_W, SMW_WTP_BH25_S, RS04	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	**25-Oct-2024**	04-Nov-2024	✓	**26-Oct-2024**	04-Nov-2024	✓
Clear glass VOC vial - HCl (EP080) GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	**25-Oct-2024**	05-Nov-2024	✓	**26-Oct-2024**	05-Nov-2024	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Amber Bottle Unpreserved for Specialist Organics (EP202-SL) PM-BH14-W - Received as PM-MW14-W, QC03, PM-BH15-W - Received as PM-MW15-W, SMW_ENV010_W, SMW_ENV009_W	**21-Oct-2024**	----	----	----	**28-Oct-2024**	28-Oct-2024	✓
Amber Bottle Unpreserved for Specialist Organics (EP202-SL) SMW_WTP_BH25_W, SMW_WTP_BH25_S, GALC-MW16_W, SMW_WTP_BH13_W	**22-Oct-2024**	----	----	----	**28-Oct-2024**	29-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	20-Apr-2025	✓	**29-Oct-2024**	20-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	20-Apr-2025	✓	**29-Oct-2024**	20-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	20-Apr-2025	✓	**29-Oct-2024**	20-Apr-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) PM-BH14-W - Received as PM-MW14-W, PM-BH15-W - Received as PM-MW15-W, SMW_ENV009_W	QC03, SMW_ENV010_W,	**21-Oct-2024**	**28-Oct-2024**	19-Apr-2025	✓	**29-Oct-2024**	19-Apr-2025	✓
HDPE (no PTFE) (EP231X) SMW_WTP_BH25_W, GALC-MW16_W,	SMW_WTP_BH25_S, SMW_WTP_BH13_W	**22-Oct-2024**	**28-Oct-2024**	20-Apr-2025	✓	**29-Oct-2024**	20-Apr-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	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	4	25	**16.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	5	42	**11.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	20	**10.00**	**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	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	**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
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	24	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	36	**8.33**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	25	**12.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	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 / *Analytical Methods*	*Method*	*Count* QC	*Count* Regular	*Rate (%)* Actual	*Rate (%)* Expected	Evaluation	*Quality Control Specification*
Laboratory Control Samples (LCS) - Continued							
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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**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
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	25	**12.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	20	**5.00**	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	15	**6.67**	**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*	
Method Blanks (MB) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	25	**12.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-AES	EG005F	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate forms highly-coloured ferric thiocynate 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-AES	EG005F	WATER	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. The ICPAES technique ionises the 0.45µm filtered samples, emitting a characteristic spectrum which is compared against matrix matched standards. 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 (SnCl2)(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 SnCl2 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).

Analytical Methods	Method	Matrix	Method Descriptions
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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. 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)
Volatile Organic Compounds	EP074	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. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with 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)
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In house: LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

* Send QC06 to Envirolab
with secondary COC attached.
Thanks!

Additional dissolved metals (Mn, Fe, P, Al)

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037~~.0~~.14 - CZ5 RAP	Lab:	ALS Sydney
Project/Site:	SCL220037~~.0~~.14	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 2		Sample Disposal After:	
Number of Eskies: 1			

CONTAINER TYPE & PRESERVATIVE – water/liquid

60 mL	60 mL	40 mL	100 mL	500 mL	20 mL	60 mL	60 mL
Clear Plastic Bottle - Nitric Acid; Filtered	Clear Plastic Bottle - NaOH Filtered	Amber VOC Vial - Sulfuric Acid	Amber Glass Bottle - Unpreserved	Clear Plastic Bottle - Natural	HDPE (no PTFE)	Clear Plastic Bottle - Sulfuric Acid	Opaque Plastic Bottle - HCl Preserved (Speciation)

LAB ID	Sample ID	Date/Time	Matrix
	TB04		W
	TS04		
	RS06	24/10	
	CZ5a-MW103		
	CZ5a-MW104		
	CZ5a-MW105		
	QC05		
*	QC06		
	CZ5a-MW101	25/10	

Subcon / Forward Lab / Split WO
Lab / Analysis: Envirolab
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC Fwd
WO No: ES2434906
Attached By PO / Internal Sheet

Sample ID	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. ~~Additional dissolved Metals (Mn, Fe, P, Al)~~ Additional dissolved	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients:** total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major ions:** Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved	TRH/BTEXN, 8 dissolved metals, PAH, PCB, VOC/SVOC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
TB04									/		
TS04									/		
RS06										/	/
CZ5a-MW103	/	/	/	/	/	/	/				
CZ5a-MW104	/	/	/	/	/	/	/				
CZ5a-MW105				/	/	/		/			
QC05		/	/	/			/				
QC06		Send	to	Envirolab							
CZ5a-MW101				/	/	/	/	/			
TOTALS	0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE DATE 25/10	Received By: NAME BULENT SIGNATURE DATE 25/10/24 1:40pm	Custody Seals Intact Y N Samples Received Chilled Y N Method of Shipment

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+833 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

Environmental Division
Sydney
Work Order Reference
ES2434906

Telephone : + 61-2-8784 8555

HT

Envirolab

Chain of Custody Record

Project No:	SCL220037.14 - CZ5 RAP
Project/Site:	SCL220037.14
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page	1 of 1
Number of Eskies:	1

Lab:	~~ALS Sydney~~
Lab Quote No:	ES24EPIENV0004 V3
Lab Batch No:	
Date Results Required:	Standard TAT (5 days)
Sample Disposal After:	

LAB ID	Sample ID	Date/Time	Matrix	CONTAINER TYPE & PRESERVATIVE water/liquid		60 mL Clear Plastic Bottle - Nitric Acid: Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved	TRH/BTEXN, 8 dissolved metals, PAH, PCB, VOC/SVOC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
	QC06	24/10	W												✓	✓	✓			✓				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:		Received By:	
NAME Natalie Chandra	SIGNATURE	DATE 25/10.	NAME BULENT	SIGNATURE	DATE 25/10/24 1:40pm

	Y	N
Custody Seals Intact	Y	N
Samples Received Chilled	Y	N
Method of Shipment		

NOTES:

Bottles supplied for As speciation to be placed on HOLD and NOT analysed

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen

8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg

TRH/TPH: total recoverable/petroleum=B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)

BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene

PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)

PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)

OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)

Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)

VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2434906**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.14_CZ5 RAP	Page	: 1 of 4
Order number	: ----	Quote number	: ES2024EPIENV0004 (ES24EPIENV0004)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: NATALIE CHANDRA		

Dates

Date Samples Received	: 25-Oct-2024 13:40	Issue Date	: 26-Oct-2024
Client Requested Due Date	: 31-Oct-2024	Scheduled Reporting Date	: **31-Oct-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 8.3'C 8.0'C 7.6'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 8 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please 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 EnviroLab.**
- 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 - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA075 Redox Potential	WATER - EP025 Dissolved Oxygen (DO)	WATER - EP080 BTEXN	WATER - W-05T TRH/BTEXN/8 Metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2434906-001	24-Oct-2024 00:00	TB04							✓
ES2434906-002	24-Oct-2024 00:00	TS04					✓		
ES2434906-003	24-Oct-2024 00:00	RS06						✓	
ES2434906-004	24-Oct-2024 00:00	CZ5a_MW103	✓	✓	✓	✓			
ES2434906-005	24-Oct-2024 00:00	CZ5a_MW104	✓	✓	✓	✓			

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA065 (only) Total Hardness	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - W-02 8 Metals	WATER - W-07 TRH/BTEXN/PAH
ES2434906-004	24-Oct-2024 00:00	CZ5a_MW103	✓	✓	✓	✓	✓	✓	✓
ES2434906-005	24-Oct-2024 00:00	CZ5a_MW104	✓	✓	✓	✓	✓	✓	✓
ES2434906-006	24-Oct-2024 00:00	CZ5a_MW105					✓		
ES2434906-007	25-Oct-2024 00:00	QC05			✓	✓		✓	✓
ES2434906-008	25-Oct-2024 00:00	CZ5a_MW101					✓		

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-13 OC/OP/PCB	WATER - W-23 minus BTEX SVOC/VOC without BTEX	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES2434906-004	24-Oct-2024 00:00	CZ5a_MW103		✓	✓	✓	✓	
ES2434906-005	24-Oct-2024 00:00	CZ5a_MW104		✓	✓	✓	✓	
ES2434906-006	24-Oct-2024 00:00	CZ5a_MW105	✓	✓	✓		✓	✓
ES2434906-007	25-Oct-2024 00:00	QC05		✓		✓	✓	
ES2434906-008	25-Oct-2024 00:00	CZ5a_MW101	✓	✓	✓		✓	✓

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							
CZ5a_MW103	Clear Plastic Bottle - Natural	----	24-Oct-2024	25-Oct-2024	✘	----	----
CZ5a_MW104	Clear Plastic Bottle - Natural	----	24-Oct-2024	25-Oct-2024	✘	----	----
EA075: Redox Potential							
CZ5a_MW103	Clear Plastic Bottle - Natural	----	24-Oct-2024	25-Oct-2024	✘	----	----
CZ5a_MW104	Clear Plastic Bottle - Natural	----	24-Oct-2024	25-Oct-2024	✘	----	----
EP025: Oxygen - Dissolved							
CZ5a_MW103	Clear Plastic Bottle - Natural	----	24-Oct-2024	25-Oct-2024	✘	----	----
CZ5a_MW104	Clear Plastic Bottle - Natural	----	24-Oct-2024	25-Oct-2024	✘	----	----

Requested Deliverables

INVOICES		
- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au
JONATHAN PICKERDEN		
- *AU Certificate of Analysis - NATA (COA)	Email	JPickerden@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	JPickerden@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	JPickerden@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
NATALIE CHANDRA		
- *AU Certificate of Analysis - NATA (COA)	Email	nchandra@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	nchandra@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	nchandra@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	nchandra@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	nchandra@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	nchandra@epicenvironmental.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2434906**	Page	: 1 of 34
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.14_CZ5 RAP	Date Samples Received	: 25-Oct-2024 13:40
Order number	: ----	Date Analysis Commenced	: 26-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024 16:50
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES24EPIENV0004		
No. of samples received	: 8		
No. of samples analysed	: 8		

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
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- EP075(SIM) : Phenolic Surrogate recovery low due to sample matrix interferences.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- EP80: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	----	**7.54**	**7.35**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	**529**	**514**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	**5170**	**15000**
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	----	----	**216**	**227**
pH Redox	----	0.01	pH Unit	----	----	----	**7.08**	**6.77**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	**107**	**107**
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	**107**	**107**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	**559**	**988**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	**2580**	**7470**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	**140**	**368**
Magnesium	7439-95-4	1	mg/L	----	----	----	**136**	**396**
Sodium	7440-23-5	1	mg/L	----	----	----	**1560**	**4020**
Potassium	7440-09-7	1	mg/L	----	----	----	**50**	**109**
ED093F: SAR and Hardness Calculations								
Total Hardness as CaCO3	----	1	mg/L	----	----	----	**910**	**2550**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	----	<0.01	**0.01**
Arsenic	7440-38-2	0.001	mg/L	----	----	----	**0.007**	**0.004**
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	<0.0001

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
Sampling date / time				24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
				ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	**0.001**	**0.001**
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	----	----	----	**0.005**	**0.005**
Manganese	7439-96-5	0.001	mg/L	----	----	----	**0.360**	**1.47**
Iron	7439-89-6	0.05	mg/L	----	----	----	**4.77**	**14.6**
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	<0.0001
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EG049F: Dissolved Trivalent Chromium								
Trivalent Chromium	16065-83-1	0.01	mg/L	----	----	----	<0.01	<0.01
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	----	----	<0.01	<0.01
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	----	**5.54**	**2.80**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	----	<0.01	<0.01

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	----	<0.01	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	----	<0.01	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	----	**6.5**	**3.5**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	----	----	----	**6.5**	**3.5**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	----	**0.29**	**0.20**
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	----	<0.01	<0.01
EN055: Ionic Balance								
ø **Total Anions**	----	0.01	meq/L	----	----	----	**86.6**	**233**
ø **Total Cations**	----	0.01	meq/L	----	----	----	**87.3**	**229**
ø **Ionic Balance**	----	0.01	%	----	----	----	**0.44**	**1.04**
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	----	----	**3.8**	**3.1**
EP066: Polychlorinated Biphenyls (PCB)								
^ **Total Polychlorinated biphenyls**	----	1	µg/L	----	----	----	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	----	----	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	----	----	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	----	----	----	<0.5	<0.5
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	----	----	----	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	----	----	----	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	----	----	----	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	----	----	----	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	----	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	----	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	----	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	----	----	----	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	----	----	----	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	----	----	----	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	----	----	----	<0.5	<0.5
4.4`-DDD	72-54-8	0.5	µg/L	----	----	----	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	----	----	----	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	----	----	<0.5	<0.5
4.4`-DDT	50-29-3	2.0	µg/L	----	----	----	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	----	----	----	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	----	----	----	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	----	----	----	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	----	----	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	----	----	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	----	----	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	----	----	----	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	----	----	----	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	----	----	----	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	----	----	----	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	----	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	----	----	----	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	----	----	----	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	----	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	----	----	----	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	----	----	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	----	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	----	----	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	----	----	----	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	----	----	----	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	----	----	----	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	----	----	----	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	----	<0.5	<0.5
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	----	----	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	----	----	----	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	----	----	----	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	----	----	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	----	----	----	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	----	----	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	----	----	----	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	----	----	----	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	----	----	----	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	----	----	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	----	----	----	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	----	----	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	----	----	----	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	----	----	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	----	----	----	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	----	----	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	----	----	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	----	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	----	<50	<50
Chloromethane	74-87-3	50	µg/L	----	----	----	<50	<50
Vinyl chloride	75-01-4	50	µg/L	----	----	----	<50	<50
Bromomethane	74-83-9	50	µg/L	----	----	----	<50	<50
Chloroethane	75-00-3	50	µg/L	----	----	----	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	----	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	----	----	----	<5	<5
Iodomethane	74-88-4	5	µg/L	----	----	----	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	----	----	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	----	----	----	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	----	----	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	----	----	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	----	----	----	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	----	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	----	----	----	<5	<5
Trichloroethene	79-01-6	5	µg/L	----	----	----	<5	<5
Dibromomethane	74-95-3	5	µg/L	----	----	----	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	----	----	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	----	----	----	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	----	----	----	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	----	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	----	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	----	----	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	----	----	<5	<5
Pentachloroethane	76-01-7	5	µg/L	----	----	----	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	----	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	----	<5	<5
Bromobenzene	108-86-1	5	µg/L	----	----	----	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	----	----	----	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	----	----	----	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	----	----	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	----	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	----	----	----	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	----	----	----	<5	<5
Bromoform	75-25-2	5	µg/L	----	----	----	<5	<5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	----	----	----	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	----	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	----	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	----	----	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	----	----	<1.0	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	----	----	----	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	----	----	----	<0.5	<0.5
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	----	----	----	<2	<2
2-Chlorophenol	95-57-8	2	µg/L	----	----	----	<2	<2
2-Methylphenol	95-48-7	2	µg/L	----	----	----	<2	<2
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	----	----	<4	<4
2-Nitrophenol	88-75-5	2	µg/L	----	----	----	<2	<2
2.4-Dimethylphenol	105-67-9	2	µg/L	----	----	----	<2	<2
2.4-Dichlorophenol	120-83-2	2	µg/L	----	----	----	<2	<2
2.6-Dichlorophenol	87-65-0	2	µg/L	----	----	----	<2	<2
4-Chloro-3-methylphenol	59-50-7	2	µg/L	----	----	----	<2	<2
2.4.6-Trichlorophenol	88-06-2	2	µg/L	----	----	----	<2	<2
2.4.5-Trichlorophenol	95-95-4	2	µg/L	----	----	----	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	----	----	----	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	----	----	----	<2	<2
2-Methylnaphthalene	91-57-6	2	µg/L	----	----	----	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	----	----	----	<2	<2
Acenaphthylene	208-96-8	2	µg/L	----	----	----	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	2	µg/L	----	----	----	<2	<2
Fluorene	86-73-7	2	µg/L	----	----	----	<2	<2
Phenanthrene	85-01-8	2	µg/L	----	----	----	<2	<2
Anthracene	120-12-7	2	µg/L	----	----	----	<2	<2
Fluoranthene	206-44-0	2	µg/L	----	----	----	<2	<2
Pyrene	129-00-0	2	µg/L	----	----	----	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	----	----	----	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	----	----	----	<2	<2
Chrysene	218-01-9	2	µg/L	----	----	----	<2	<2
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	----	----	----	<4	<4
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	----	----	----	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	----	----	----	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	----	----	----	<2	<2
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	----	----	----	<2	<2
Dibenz(a.h)anthracene	53-70-3	2	µg/L	----	----	----	<2	<2
Benzo(g.h.i)perylene	191-24-2	2	µg/L	----	----	----	<2	<2
^ Sum of PAHs	----	2	µg/L	----	----	----	<2	<2
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	----	----	----	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	----	----	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	----	----	----	<2	<2
Di-n-butyl phthalate	84-74-2	2	µg/L	----	----	----	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	----	----	----	<2	<2
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	----	----	<10	<10
Di-n-octylphthalate	117-84-0	2	µg/L	----	----	----	<2	<2
EP075D: Nitrosamines								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP075D: Nitrosamines - Continued								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	----	----	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	----	----	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	----	----	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	----	----	----	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	----	----	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	----	----	----	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	----	----	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	----	----	<4	<4
Methapyrilene	91-80-5	2	µg/L	----	----	----	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	----	----	<2	<2
Acetophenone	98-86-2	2	µg/L	----	----	----	<2	<2
Nitrobenzene	98-95-3	2	µg/L	----	----	----	<2	<2
Isophorone	78-59-1	2	µg/L	----	----	----	<2	<2
2.6-Dinitrotoluene	606-20-2	4	µg/L	----	----	----	<4	<4
2.4-Dinitrotoluene	121-14-2	4	µg/L	----	----	----	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	----	----	----	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	----	----	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	----	----	<2	<2
Azobenzene	103-33-3	2	µg/L	----	----	----	<2	<2
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	----	----	----	<2	<2
Phenacetin	62-44-2	2	µg/L	----	----	----	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	----	----	----	<2	<2
Pentachloronitrobenzene	82-68-8	2	µg/L	----	----	----	<2	<2
Pronamide	23950-58-5	2	µg/L	----	----	----	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	----	----	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP075E: Nitroaromatics and Ketones - Continued								
Chlorobenzilate	510-15-6	2	µg/L	----	----	----	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	----	----	----	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	----	----	----	<2	<2
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	----	----	----	<2	<2
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	----	----	----	<2	<2
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	----	----	----	<2	<2
1.4-Dichlorobenzene	106-46-7	2	µg/L	----	----	----	<2	<2
1.2-Dichlorobenzene	95-50-1	2	µg/L	----	----	----	<2	<2
Hexachloroethane	67-72-1	2	µg/L	----	----	----	<2	<2
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	----	----	----	<2	<2
Hexachloropropylene	1888-71-7	2	µg/L	----	----	----	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	----	----	----	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	----	----	----	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	----	----	----	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	----	----	----	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	----	----	----	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	----	----	----	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	----	----	----	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	----	----	----	<4	<4
Dibenzofuran	132-64-9	2	µg/L	----	----	----	<2	<2
4-Nitroaniline	100-01-6	2	µg/L	----	----	----	<2	<2
Carbazole	86-74-8	2	µg/L	----	----	----	<2	<2
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	----	----	----	<2	<2
EP075I: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
alpha-BHC	319-84-6	2	µg/L	----	----	----	<2	<2
beta-BHC	319-85-7	2	µg/L	----	----	----	<2	<2
gamma-BHC - (Lindane)	58-89-9	2	µg/L	----	----	----	<2	<2
delta-BHC	319-86-8	2	µg/L	----	----	----	<2	<2
Heptachlor	76-44-8	2	µg/L	----	----	----	<2	<2
Aldrin	309-00-2	2	µg/L	----	----	----	<2	<2
Heptachlor epoxide	1024-57-3	2	µg/L	----	----	----	<2	<2
alpha-Endosulfan	959-98-8	2	µg/L	----	----	----	<2	<2
4.4`-DDE	72-55-9	2	µg/L	----	----	----	<2	<2
Dieldrin	60-57-1	2	µg/L	----	----	----	<2	<2
Endrin	72-20-8	2	µg/L	----	----	----	<2	<2
beta-Endosulfan	33213-65-9	2	µg/L	----	----	----	<2	<2
4.4`-DDD	72-54-8	2	µg/L	----	----	----	<2	<2
Endosulfan sulfate	1031-07-8	2	µg/L	----	----	----	<2	<2
4.4`-DDT	50-29-3	4	µg/L	----	----	----	<4	<4
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	----	----	----	<4	<4
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	----	----	----	<4	<4
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	----	----	----	<2	<2
Dimethoate	60-51-5	2	µg/L	----	----	----	<2	<2
Diazinon	333-41-5	2	µg/L	----	----	----	<2	<2
Chlorpyrifos-methyl	5598-13-0	2	µg/L	----	----	----	<2	<2
Malathion	121-75-5	2	µg/L	----	----	----	<2	<2
Fenthion	55-38-9	2	µg/L	----	----	----	<2	<2
Chlorpyrifos	2921-88-2	2	µg/L	----	----	----	<2	<2
Pirimphos-ethyl	23505-41-1	2	µg/L	----	----	----	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
				Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
	Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
					Result	Result	Result	Result	Result
EP075J: Organophosphorus Pesticides - Continued									
	Chlorfenvinphos	470-90-6	2	µg/L	----	----	----	<2	<2
	Prothiofos	34643-46-4	2	µg/L	----	----	----	<2	<2
	Ethion	563-12-2	2	µg/L	----	----	----	<2	<2
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	<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
^	**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	<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	**14**	<1	<1	<1
	Toluene	108-88-3	2	µg/L	<2	**14**	<2	<2	<2
	Ethylbenzene	100-41-4	2	µg/L	<2	**14**	<2	<2	<2
	meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	**14**	<2	<2	<2
	ortho-Xylene	95-47-6	2	µg/L	<2	**15**	<2	<2	<2
^	**Total Xylenes**	----	2	µg/L	<2	**29**	<2	<2	<2
^	**Sum of BTEX**	----	1	µg/L	<1	**71**	<1	<1	<1
	Naphthalene	91-20-3	5	µg/L	<5	**19**	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	----	----	----	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	----	----	----	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	----	----	----	**0.01**	**0.01**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	----	----	----	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	----	----	----	**0.08**	**0.05**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	----	----	**0.04**	**0.03**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	----	----	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	----	----	**0.01**	**0.05**
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	----	----	----	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	----	----	----	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	----	----	----	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	----	----	----	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	----	----	**0.01**	**0.01**
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	----	----	**0.14**	**0.14**
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	----	----	**91.2**	**96.6**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	----	**95.2**	**96.6**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	----	**81.0**	**86.6**
EP074S: VOC Surrogates								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	----	----	108	110
Toluene-D8	2037-26-5	5	%	----	----	----	118	118
4-Bromofluorobenzene	460-00-4	5	%	----	----	----	113	112
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	----	----	30.5	25.4
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	----	73.5	64.6
2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	----	85.9	78.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	----	94.7	88.5
Anthracene-d10	1719-06-8	1.0	%	----	----	----	74.5	92.4
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	----	99.1	93.2
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	----	----	----	30.8	32.4
Phenol-d6	13127-88-3	2	%	----	----	----	19.8	19.8
2-Chlorophenol-D4	93951-73-6	2	%	----	----	----	57.4	58.1
2.4.6-Tribromophenol	118-79-6	2	%	----	----	----	35.0	52.1
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	----	----	----	61.3	62.9
1.2-Dichlorobenzene-D4	2199-69-1	2	%	----	----	----	57.6	58.4
2-Fluorobiphenyl	321-60-8	2	%	----	----	----	66.4	67.2
Anthracene-d10	1719-06-8	2	%	----	----	----	68.7	63.5
4-Terphenyl-d14	1718-51-0	2	%	----	----	----	96.1	94.9
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	119	120	124	128	130
Toluene-D8	2037-26-5	2	%	103	120	110	113	113
4-Bromofluorobenzene	460-00-4	2	%	107	128	111	115	116
EP231S: PFAS Surrogate								

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

			Sample ID	TB04	TS04	RS06	CZ5a_MW103	CZ5a_MW104
			Sampling date / time	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00	24-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434906-001	ES2434906-002	ES2434906-003	ES2434906-004	ES2434906-005
				Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued								
13C4-PFOS	----	0.02	%	----	----	----	103	99.1
13C8-PFOA	----	0.02	%	----	----	----	95.2	95.8

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	CZ5a_MW105	QC05	CZ5a_MW101	----	----
Sampling date / time				24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
				ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**429**	----	**524**	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**429**	----	**524**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**1270**	----	**2280**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**6970**	----	**10500**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**358**	----	**415**	----	----
Magnesium	7439-95-4	1	mg/L	**558**	----	**773**	----	----
Sodium	7440-23-5	1	mg/L	**3900**	----	**6720**	----	----
Potassium	7440-09-7	1	mg/L	**13**	----	**143**	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.007**	<0.010	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	**0.0027**	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.010	----	----
Copper	7440-50-8	0.001	mg/L	**0.004**	<0.001	<0.010	----	----
Nickel	7440-02-0	0.001	mg/L	**0.003**	**0.001**	**0.016**	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.010	----	----
Zinc	7440-66-6	0.005	mg/L	**0.015**	<0.005	**0.559**	----	----
Manganese	7439-96-5	0.001	mg/L	----	**0.365**	----	----	----
Iron	7439-89-6	0.05	mg/L	----	**4.94**	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG049F: Dissolved Trivalent Chromium								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
				Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
	Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
					Result	Result	Result	----	----
EG049F: Dissolved Trivalent Chromium - Continued									
	Trivalent Chromium	16065-83-1	0.01	mg/L	----	<0.01	----	----	----
EG050F: Dissolved Hexavalent Chromium									
	Hexavalent Chromium	18540-29-9	0.01	mg/L	----	<0.01	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
	Ammonia as N	7664-41-7	0.01	mg/L	**0.22**	----	**0.34**	----	----
EK057G: Nitrite as N by Discrete Analyser									
	Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	**0.06**	----	----
EK058G: Nitrate as N by Discrete Analyser									
	Nitrate as N	14797-55-8	0.01	mg/L	<0.01	----	**0.04**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
	Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	**0.10**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
	Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.4**	----	**0.6**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^	**Total Nitrogen as N**	----	0.1	mg/L	**0.4**	----	**0.7**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
	Total Phosphorus as P	----	0.01	mg/L	**0.02**	----	**0.17**	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
	Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	<0.01	----	----
EN055: Ionic Balance									
ø	**Total Anions**	----	0.01	meq/L	**232**	----	**354**	----	----
ø	**Total Cations**	----	0.01	meq/L	**234**	----	**380**	----	----
ø	**Ionic Balance**	----	0.01	%	**0.46**	----	**3.56**	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^	**Total Polychlorinated biphenyls**	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)									
	alpha-BHC	319-84-6	0.5	µg/L	----	<0.5	----	----	----
	Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.5	µg/L	----	<0.5	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	----	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	----	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	----	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	----	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	----	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	----	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L	----	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L	----	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	----	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	----	<2.0	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	----	<0.5	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	<0.5	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	----	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	----	<2.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Dimethoate	60-51-5	0.5	µg/L	----	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L	----	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	----	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L	----	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L	----	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L	----	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	----	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	----	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L	----	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	----	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP074B: Oxygenated Compounds - Continued								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	**99**	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	**14**	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	**5**	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	<4	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075A: Phenolic Compounds - Continued								
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	<2	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	----	----
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	----	----
Fluorene	86-73-7	2	µg/L	<2	<2	<2	----	----
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	----	----
Anthracene	120-12-7	2	µg/L	<2	<2	<2	----	----
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	----	----
Pyrene	129-00-0	2	µg/L	<2	<2	<2	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	----	----
Chrysene	218-01-9	2	µg/L	<2	<2	<2	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	----	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	<2	<2	----	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	<2	<2	----	----
^ Sum of PAHs	----	2	µg/L	<2	<2	<2	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	<2	<2	----	----
EP075C: Phthalate Esters								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075C: Phthalate Esters - Continued								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	----	----
Diethyl phthalate	84-66-2	2	µg/L	**5**	<2	<2	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	----	----
Isophorone	78-59-1	2	µg/L	<2	<2	<2	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075E: Nitroaromatics and Ketones - Continued								
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	----	----
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	----	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075H: Anilines and Benzidines - Continued								
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	<2	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	----	----
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	----	----
gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	<2	<2	----	----
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	<2	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	----	----
4.4`-DDE	72-55-9	2	µg/L	<2	<2	<2	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	----	----
Endrin	72-20-8	2	µg/L	<2	<2	<2	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	----	----
4.4`-DDD	72-54-8	2	µg/L	<2	<2	<2	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	----	----
4.4`-DDT	50-29-3	4	µg/L	<4	<4	<4	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	<4	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	<4	<4	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075J: Organophosphorus Pesticides - Continued								
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	----	----
Malathion	121-75-5	2	µg/L	<2	<2	<2	----	----
Fenthion	55-38-9	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	----	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	----	----
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	----	----
Ethion	563-12-2	2	µg/L	<2	<2	<2	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP080: BTEXN - Continued								
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								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	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	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	**0.02**	<0.01	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	**0.09**	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	**0.04**	<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	----	----
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								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP231P: PFAS Sums - Continued								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	**0.02**	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	**0.16**	<0.01	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**87.4**	**94.9**	**93.8**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	**90.4**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	**77.1**	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**107**	**103**	**107**	----	----
Toluene-D8	2037-26-5	5	%	**117**	**112**	**111**	----	----
4-Bromofluorobenzene	460-00-4	5	%	**111**	**104**	**105**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**24.2**	**20.4**	**21.3**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**29.8**	**53.0**	**39.1**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**62.0**	**63.8**	**72.9**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**73.8**	**77.0**	**82.9**	----	----
Anthracene-d10	1719-06-8	1.0	%	**71.2**	**82.4**	**83.8**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**77.1**	**101**	**93.4**	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	**34.0**	**25.1**	**36.5**	----	----
Phenol-d6	13127-88-3	2	%	**27.2**	**15.1**	**24.3**	----	----
2-Chlorophenol-D4	93951-73-6	2	%	**57.8**	**46.6**	**56.0**	----	----
2.4.6-Tribromophenol	118-79-6	2	%	**52.3**	**32.1**	**49.9**	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	**63.9**	**49.2**	**59.8**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ5a_MW105	QC05	CZ5a_MW101	----	----
			Sampling date / time	24-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2434906-006	ES2434906-007	ES2434906-008	--------	--------
				Result	Result	Result	----	----
EP075T: Base/Neutral Extractable Surrogates - Continued								
1.2-Dichlorobenzene-D4	2199-69-1	2	%	61.4	47.3	59.5	----	----
2-Fluorobiphenyl	321-60-8	2	%	71.2	53.6	71.1	----	----
Anthracene-d10	1719-06-8	2	%	77.2	53.1	81.8	----	----
4-Terphenyl-d14	1718-51-0	2	%	76.0	78.1	79.5	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	126	121	126	----	----
Toluene-D8	2037-26-5	2	%	113	106	108	----	----
4-Bromofluorobenzene	460-00-4	2	%	114	108	108	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	95.5	96.8	101	----	----
13C8-PFOA	----	0.02	%	96.4	96.7	92.7	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
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

QUALITY CONTROL REPORT

Work Order	: **ES2434906**	Page	: 1 of 21
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.14_CZ5 RAP	Date Samples Received	: 25-Oct-2024
Order number	: ----	Date Analysis Commenced	: 26-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES24EPIENV0004		
No. of samples received	: 8		
No. of samples analysed	: 8		

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
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 6148218)									
ES2434906-005	CZ5a_MW104	EA005-P: pH Value	----	0.01	pH Unit	7.35	7.34	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6148215)									
EN2413611-009	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1990	2010	1.0	0% - 20%
ES2434769-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	291	286	1.8	0% - 20%
ES2434906-005	CZ5a_MW104	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	514	513	0.2	0% - 20%
ES2434766-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	755	756	0.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6150322)									
ES2434622-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	408	394	3.7	0% - 20%
ES2434828-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	140	141	0.0	0% - 50%
ES2434907-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	20800	21200	2.1	0% - 20%
EA075: Redox Potential (QC Lot: 6155511)									
ES2434769-001	Anonymous	EA075: Redox Potential	----	0.1	mV	186	190	1.9	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.19	7.21	0.3	0% - 20%
ES2435027-001	Anonymous	EA075: Redox Potential	----	0.1	mV	204	200	2.0	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.42	7.43	0.1	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6148217)									
ES2434906-005	CZ5a_MW104	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	107	106	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	107	106	0.0	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
ED037P: Alkalinity by PC Titrator (QC Lot: 6148217) - continued									
ES2434766-003	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	41	40	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	41	40	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6147446)									
ES2434907-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	461	454	1.6	0% - 20%
ES2434904-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1 (10)*	mg/L	<10	15	39.2	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6147444)									
ES2434907-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	3480	3520	1.3	0% - 20%
ES2434904-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	8	8	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 6151715)									
ES2434739-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	116	115	1.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	15	10	40.3	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	56	51	7.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
ES2434907-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	75	74	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	471	471	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3430	3440	0.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6151716)									
ES2434906-005	CZ5a_MW104	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	0.003	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: Manganese	7439-96-5	0.001	mg/L	1.47	1.51	2.1	0% - 20%
		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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	14.6	14.8	1.4	0% - 20%
ES2434907-008	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.073	0.074	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.386	0.387	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.106	0.107	1.7	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6151716) - continued									
ES2434907-008	Anonymous	EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.111	0.112	0.0	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.63	0.64	0.0	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	2.07	2.06	0.5	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 6152561)									
ES2434704-019	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	73.7	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2434726-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.073	0.074	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6151717)									
ES2434906-005	CZ5a_MW104	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2434907-008	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6151785)									
ES2434809-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2434944-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6151513)									
ES2434587-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434906-007	QC05	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.02	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6151988)									
ES2434906-004	CZ5a_MW103	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	5.54	5.64	1.8	0% - 20%
ES2434907-009	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.04	122	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6147447)									
ES2434907-004	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434904-001	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: 6151989)									
ES2434906-004	CZ5a_MW103	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434907-009	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.10	0.15	45.1	0% - 50%

Sub-Matrix: **WATER**

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6151993)									
ES2434906-004	CZ5a_MW103	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.2)*	mg/L	6.5	6.3	2.5	0% - 20%
EW2404901-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	99.1	100	1.2	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6151992)									
ES2434906-004	CZ5a_MW103	EK067G: Total Phosphorus as P	----	0.01 (0.02)*	mg/L	0.29	0.27	8.2	0% - 50%
EW2404901-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.20)*	mg/L	13.7	14.2	4.2	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6147445)									
ES2434907-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434904-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.22	0.21	0.0	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2434907-006	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6148128)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074C: Sulfonated Compounds (QC Lot: 6148128) - continued									
ES2434769-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6148128) - continued									
ES2434769-001	Anonymous	EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2434907-006	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	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 (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 6148128) - continued									
ES2434907-006	Anonymous	EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6148127)									
ES2434769-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2434907-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6148127)									
ES2434769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2434907-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6148127)									
ES2434769-001	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2434907-006	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6148218)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6148215)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	93.6	89.9	110
				<1	2100 µS/cm	93.9	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6150322)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.1	87.0	109
				<10	293 mg/L	104	75.2	126
				<10	2410 mg/L	105	83.0	124
EA075: Redox Potential (QCLot: 6155511)								
EA075: Redox Potential	----	----	mV	----	234 mV	98.5	96.0	106
				----	300 mV	99.9	97.0	105
				----	86 mV	100	89.0	111
ED037P: Alkalinity by PC Titrator (QCLot: 6148217)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	109	80.0	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6147446)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	101	82.0	122
				<1	500 mg/L	96.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6147444)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	88.6	80.9	127
				<1	1000 mg/L	97.6	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6151715)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	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	104	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	91.5	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.9	84.0	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716) - continued								
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.1	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.5	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.3	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.1	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.6	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	91.4	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 6152561)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.6	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.4	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.5	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	114	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.0	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 6151717)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.7	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6151785)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	102	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 6151513)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	100.0	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6151988)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	103	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6147447)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.9	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6151989)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	102	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151993)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	89.2	69.0	123
				<0.1	1 mg/L	109	70.0	123
				<0.1	5 mg/L	94.6	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151992)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151992) - continued								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	92.6	71.3	126
				<0.01	0.442 mg/L	101	71.3	126
				<0.01	1 mg/L	96.4	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6147445)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.8	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6147524)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	95.6	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 6147525)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	83.8	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	90.2	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	82.0	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	84.8	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	93.6	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	80.1	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	78.4	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	85.8	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	82.6	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	84.8	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	85.6	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	92.4	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	87.0	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	96.1	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	86.0	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	87.8	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	95.4	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	76.5	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	83.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	89.3	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	79.8	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6147525)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	82.6	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	89.2	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.3	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	78.9	69.5	110

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6147525) - continued								
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	90.9	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	86.2	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	81.7	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	86.3	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	84.3	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	83.3	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	81.0	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	91.3	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	104	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	85.8	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	88.6	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	75.6	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	79.6	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	77.9	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	71.0	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6148128)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	96.3	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	99.9	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	99.4	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	101	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	101	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.3	65.0	123
EP074B: Oxygenated Compounds (QCLot: 6148128)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	105	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	96.4	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	91.7	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	90.6	65.0	137
EP074C: Sulfonated Compounds (QCLot: 6148128)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	103	72.8	127
EP074D: Fumigants (QCLot: 6148128)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	99.7	68.0	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 6148128) - continued								
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	95.2	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	93.1	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	93.2	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	98.8	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 6148128)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	97.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	104	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	96.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	105	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	103	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	104	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	105	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	91.8	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	86.6	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.4	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	95.8	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	96.5	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	97.0	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	104	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	101	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.6	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	99.4	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	95.6	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	92.8	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	98.6	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100.0	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	115	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.4	66.4	136
EP074F: Halogenated Aromatic Compounds (QCLot: 6148128)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	103	79.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP074F: Halogenated Aromatic Compounds (QCLot: 6148128) - continued								
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	107	67.0	123
EP074G: Trihalomethanes (QCLot: 6148128)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	96.9	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.3	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	91.6	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6147523)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	79.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	72.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	77.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	74.5	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	89.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	92.6	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	94.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	91.0	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	86.7	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	91.7	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	83.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	94.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	91.3	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	82.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	80.2	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	81.0	59.1	118
EP075A: Phenolic Compounds (QCLot: 6147526)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	32.2	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	63.6	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	60.3	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	47.7	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	71.4	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	# 39.7	50.0	94.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075A: Phenolic Compounds (QCLot: 6147526) - continued								
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	74.3	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	72.9	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	75.7	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	78.3	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	85.7	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	46.9	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 6147526)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	69.0	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	73.5	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	82.1	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	85.6	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	78.7	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	85.4	65.2	107
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	86.4	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	87.8	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	91.4	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	90.5	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	89.2	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	95.8	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	101	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	97.5	60.1	111
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	79.9	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	102	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	83.9	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	93.5	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	93.1	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	95.2	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters (QCLot: 6147526)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	94.1	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	# 117	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	88.8	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	89.5	61.2	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	High
EP075C: Phthalate Esters (QCLot: 6147526) - continued								
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	92.5	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	85.0	62.1	115
EP075D: Nitrosamines (QCLot: 6147526)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	48.0	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	65.2	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	59.4	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	58.9	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	78.8	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	76.1	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	71.2	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	87.3	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	89.1	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 6147526)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	43.1	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	74.8	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	68.9	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	81.7	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	91.3	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	83.2	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	71.3	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	93.1	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	85.2	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	88.6	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	79.5	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	72.2	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	# 37.1	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	84.6	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	84.3	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	76.1	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	87.9	57.7	110
EP075F: Haloethers (QCLot: 6147526)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	76.6	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	77.4	66.2	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075F: Haloethers (QCLot: 6147526) - continued								
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	83.2	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	84.9	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 6147526)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	62.6	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	61.4	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	63.4	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	61.1	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	66.7	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	64.3	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	64.8	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	85.2	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	78.8	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	87.3	65.7	110
EP075H: Anilines and Benzidines (QCLot: 6147526)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	# 47.9	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	64.3	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	86.1	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	76.1	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	80.3	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	70.8	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	85.6	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	70.3	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 6147526)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	86.9	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	88.9	53.0	107
EP075: gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	10 µg/L	90.1	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	87.8	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	85.9	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	84.2	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	84.4	50.0	118
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	83.0	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	88.2	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	87.0	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	85.7	58.0	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075I: Organochlorine Pesticides (QCLot: 6147526) - continued								
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	87.8	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	85.7	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	92.3	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	91.7	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 6147526)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	90.6	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	77.9	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	86.4	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	89.2	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	96.0	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	88.1	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	85.3	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	85.0	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	84.2	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	90.6	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	101	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6147522)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	75.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	87.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.1	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148127)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	91.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6147522)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	56.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	98.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	72.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148127)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.0	75.0	127
EP080: BTEXN (QCLot: 6148127)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	109	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	73.5	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080: BTEXN (QCLot: 6148127) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.8	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	107	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150361)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	130	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	109	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	110	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150361)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	110	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	98.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.3	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	118	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150361)								
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	130	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	88.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	106	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6147446)							
ES2434904-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	112	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6147444)							
ES2434904-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	95.2	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716)							
ES2434906-004	CZ5a_MW103	EG020A-F: Arsenic	7440-38-2	1 mg/L	95.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	87.7	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716) - continued							
ES2434906-004	CZ5a_MW103	EG020A-F: Chromium	7440-47-3	1 mg/L	87.3	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	89.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	76.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	84.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	88.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	90.7	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 6152561)							
ES2434704-020	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	88.1	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.8	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.1	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	88.5	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	75.5	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	89.1	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6151717)							
ES2434769-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	99.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6151785)							
ES2434809-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	101	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6151513)							
ES2434587-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.5 mg/L	104	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6151988)							
ES2434906-004	CZ5a_MW103	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6147447)							
ES2434904-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	114	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6151989)							
ES2434906-004	CZ5a_MW103	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	103	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151993)							
ES2434906-005	CZ5a_MW104	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	82.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151992)							
ES2434906-005	CZ5a_MW104	EK067G: Total Phosphorus as P	----	1 mg/L	93.6	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6147445)							
ES2434904-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	107	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 6148128)							
ES2434769-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	105	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6148128) - continued							
ES2434769-001	Anonymous	EP074: Trichloroethene	79-01-6	25 µg/L	107	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 6148128)							
ES2434769-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	114	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148127)							
ES2434769-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148127)							
ES2434769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	110	70.0	130
EP080: BTEXN (QCLot: 6148127)							
ES2434769-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	117	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	108	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	117	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	111	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2434906**	Page	: 1 of 18
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.14_CZ5 RAP	Date Samples Received	: 25-Oct-2024
Site	: ----	Issue Date	: 31-Oct-2024
Sampler	: NATALIE CHANDRA	No. of samples received	: 8
Order number	: ----	No. of samples analysed	: 8

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds	QC-6147526-002	----	**2.4-Dimethylphenol**	105-67-9	39.7 %	50.0-94.0%	**Recovery less than lower control limit**
EP075C: Phthalate Esters	QC-6147526-002	----	**Diethyl phthalate**	84-66-2	117 %	67.3-111%	**Recovery greater than upper control limit**
EP075E: Nitroaromatics and Ketones	QC-6147526-002	----	**4-Aminobiphenyl**	92-67-1	37.1 %	60.1-112%	**Recovery less than lower control limit**
EP075H: Anilines and Benzidines	QC-6147526-002	----	**Aniline**	62-53-3	47.9 %	50.0-104%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	ES2434906--004	CZ5a_MW103	**Ammonia as N**	7664-41-7	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						
CZ5a_MW103, CZ5a_MW104	----	----	----	28-Oct-2024	24-Oct-2024	**4**
EA075: Redox Potential						
Clear Plastic Bottle - Natural						
CZ5a_MW103, CZ5a_MW104	----	----	----	30-Oct-2024	24-Oct-2024	**6**
EP025: Oxygen - Dissolved (DO)						
Clear Plastic Bottle - Natural						
CZ5a_MW103, CZ5a_MW104	----	----	----	26-Oct-2024	24-Oct-2024	**2**

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	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS) - Continued						
Pesticides by GCMS	EP068	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	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) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**----**	----	----	**28-Oct-2024**	24-Oct-2024	✘
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**----**	----	----	**28-Oct-2024**	21-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**----**	----	----	**28-Oct-2024**	31-Oct-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**----**	----	----	**30-Oct-2024**	24-Oct-2024	✘
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**----**	----	----	**28-Oct-2024**	07-Nov-2024	✓
Clear Plastic Bottle - Natural (ED037-P) CZ5a_MW101		**25-Oct-2024**	**----**	----	----	**28-Oct-2024**	08-Nov-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**----**	----	----	**26-Oct-2024**	21-Nov-2024	✓
Clear Plastic Bottle - Natural (ED041G) CZ5a_MW101		**25-Oct-2024**	**----**	----	----	**26-Oct-2024**	22-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	24-Oct-2024	----	----	----	26-Oct-2024	21-Nov-2024	✓
Clear Plastic Bottle - Natural (ED045G) CZ5a_MW101	25-Oct-2024	----	----	----	26-Oct-2024	22-Nov-2024	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	24-Oct-2024	----	----	----	29-Oct-2024	21-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ5a_MW101	25-Oct-2024	----	----	----	29-Oct-2024	22-Nov-2024	✓
ED093F: SAR and Hardness Calculations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ5a_MW103, CZ5a_MW104	24-Oct-2024	----	----	----	29-Oct-2024	21-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	24-Oct-2024	----	----	----	29-Oct-2024	22-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC05, CZ5a_MW101	25-Oct-2024	----	----	----	29-Oct-2024	23-Apr-2025	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RS06	24-Oct-2024	29-Oct-2024	22-Apr-2025	✓	29-Oct-2024	22-Apr-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	24-Oct-2024	----	----	----	30-Oct-2024	21-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC05, CZ5a_MW101	25-Oct-2024	----	----	----	30-Oct-2024	22-Nov-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RS06	24-Oct-2024	----	----	----	31-Oct-2024	21-Nov-2024	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ5a_MW103, CZ5a_MW104	24-Oct-2024	----	----	----	29-Oct-2024	21-Nov-2024	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) QC05	25-Oct-2024	----	----	----	29-Oct-2024	22-Nov-2024	✓

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**----**	----	----	**29-Oct-2024**	21-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ5a_MW101	**25-Oct-2024**	**----**	----	----	**29-Oct-2024**	22-Nov-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**----**	----	----	**26-Oct-2024**	26-Oct-2024	✓
Clear Plastic Bottle - Natural (EK057G) CZ5a_MW101	**25-Oct-2024**	**----**	----	----	**26-Oct-2024**	27-Oct-2024	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**----**	----	----	**29-Oct-2024**	21-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ5a_MW101	**25-Oct-2024**	**----**	----	----	**29-Oct-2024**	22-Nov-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**29-Oct-2024**	21-Nov-2024	✓	**29-Oct-2024**	21-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ5a_MW101	**25-Oct-2024**	**29-Oct-2024**	22-Nov-2024	✓	**29-Oct-2024**	22-Nov-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**29-Oct-2024**	21-Nov-2024	✓	**29-Oct-2024**	21-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ5a_MW101	**25-Oct-2024**	**29-Oct-2024**	22-Nov-2024	✓	**29-Oct-2024**	22-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**----**	----	----	**26-Oct-2024**	26-Oct-2024	✓
Clear Plastic Bottle - Natural (EK071G) CZ5a_MW101	**25-Oct-2024**	**----**	----	----	**26-Oct-2024**	27-Oct-2024	✓
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**----**	----	----	**26-Oct-2024**	24-Oct-2024	✗

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP066) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP068) QC05		**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP068) QC05		**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC05,	CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105		**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101		**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05		**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105		**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103,	CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101		**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05		**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW103, CZ5a_MW104	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**29-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) QC05	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) RS06, CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC05, CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB04, RS06, CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC05, CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) RS06, CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	31-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC05, CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB04, RS06, CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC05, CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB04, TS04, RS06, CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**28-Oct-2024**	07-Nov-2024	✓	**28-Oct-2024**	07-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC05, CZ5a_MW101	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**28-Oct-2024**	08-Nov-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**29-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
HDPE (no PTFE) (EP231X) QC05, CZ5a_MW101	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) CZ5a_MW103, CZ5a_MW104, CZ5a_MW105	**24-Oct-2024**	**29-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
HDPE (no PTFE) (EP231X) QC05, CZ5a_MW101	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-2025	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**29-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
HDPE (no PTFE) (EP231X) QC05,	CZ5a_MW101	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) CZ5a_MW103, CZ5a_MW105	CZ5a_MW104,	**24-Oct-2024**	**29-Oct-2024**	22-Apr-2025	✓	**31-Oct-2024**	22-Apr-2025	✓
HDPE (no PTFE) (EP231X) QC05,	CZ5a_MW101	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-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	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	18	**11.11**	**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	14	**14.29**	**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	19	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	23	**13.04**	**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 Mercury by FIMS	EG035T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	**0.00**	**10.00**	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	36	**8.33**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	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							
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	14	**7.14**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	23	**21.74**	**12.50**	✓	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 Mercury by FIMS	EG035T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	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
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	**5.56**	**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	14	**7.14**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	23	**8.70**	**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 Mercury by FIMS	EG035T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	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*	
Method Blanks (MB) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**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
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**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	14	**7.14**	**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	19	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.14**	**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 Mercury by FIMS	EG035T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**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
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate 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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(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 SnCl2 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).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 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.
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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)

Analytical Methods	Method	Matrix	Method Descriptions
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)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)
Volatile Organic Compounds	EP074	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. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with 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 LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
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.

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HT

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5 days)
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page 1 of 1		Sample Disposal After:	
Number of Eskies:	2		

CONTAINER TYPE & PRESERVATIVE — water/liquid

		60 mL	60 mL	40 mL	100 mL	500 mL	20 mL	60 mL	60 mL
		Clear Plastic Bottle - Nitric Acid; Filtered	Clear Plastic Bottle - NaOH Filtered	Amber VOC Vial - Sulfuric Acid	Amber Glass Bottle - Unpreserved	Clear Plastic Bottle - Natural	HDPE (no PTFE)	Clear Plastic Bottle - Sulfuric Acid	Opaque Plastic Bottle - HCl Preserved (Speciation)
TOTALS									

LAB ID	Sample ID	Date/Time	Matrix	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	**Nutrients:** total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	**Major Ions:** Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
	TB03		W									✓		
	TS03											✓		
	CZ1_BH13_W	23/10		✓	✓	✓	✓	✓	✓	✓				
	CZ6_MW09			✓	✓	✓	✓	✓	✓	✓				
	SMW_ENV145_W			✓	✓	✓	✓	✓	✓	✓				
	SMW_ENV039_W			✓	✓	✓	✓	✓	✓	✓				
	RS05												✓	✓
	CZ42_MW02_W	25/10		✓	✓	✓	✓	✓	✓	✓				
	CZ42_MW03_W			✓	✓	✓	✓	✓	✓	✓				
	RS07												✓	✓
			TOTALS	0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra SIGNATURE DATE 25/10	Received By: NAME Wills SIGNATURE DATE 25/10/24 1405	Custody Seals Intact Y N Samples Received Chilled Y N Method of Shipment

NOTES:

Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen

8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg

TRH/TPH: total recoverable/petroleum+833 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)

BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene

PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)

PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)

OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)

Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)

VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

Environmental Division
Sydney
Work Order Reference
ES2434907

Telephone : + 61-2-8784 8555

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2434907**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: JPickerden@epicenvironmental.com .au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SCL220037.10	Page	: 1 of 4
Order number	: ----	Quote number	: ES2024EPIENV0004 (ES24EPIENV0004)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: NATALIE CHANDRA		

Dates

Date Samples Received	: 25-Oct-2024 14:05	Issue Date	: 26-Oct-2024
Client Requested Due Date	: 31-Oct-2024	Scheduled Reporting Date	: **31-Oct-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.7'C 14.0'C 15.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 12 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **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 - EG020F Dissolved Metals by ICP/MS	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EP080 BTEXN	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-16 TRH/BTEXN/PAH/OC/OP/PCB/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2434907-001	23-Oct-2024 00:00	TB03							✓
ES2434907-002	23-Oct-2024 00:00	TS03			✓				
ES2434907-003	23-Oct-2024 00:00	CZ1_BH13_W	✓	✓		✓	✓	✓	
ES2434907-004	23-Oct-2024 00:00	CZ5_MW09	✓	✓		✓	✓	✓	
ES2434907-005	23-Oct-2024 00:00	SMW_ENV145_W	✓	✓		✓	✓	✓	
ES2434907-006	23-Oct-2024 00:00	SMW_ENV039_W	✓	✓		✓	✓	✓	
ES2434907-008	25-Oct-2024 00:00	CZ4e_MW02_W	✓	✓		✓	✓	✓	
ES2434907-009	25-Oct-2024 00:00	CZ4e_MW03_W	✓	✓		✓	✓	✓	

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EA065 (only) Total Hardness	WATER - EA075 Redox Potential	WATER - EP025 Dissolved Oxygen (DO)	WATER - W-23 minus BTEX SVOC/VOC without BTEX
ES2434907-003	23-Oct-2024 00:00	CZ1_BH13_W	✓	✓	✓	✓	✓	✓	✓
ES2434907-004	23-Oct-2024 00:00	CZ5_MW09	✓	✓	✓	✓	✓	✓	✓
ES2434907-005	23-Oct-2024 00:00	SMW_ENV145_W	✓	✓	✓	✓	✓	✓	✓
ES2434907-006	23-Oct-2024 00:00	SMW_ENV039_W	✓	✓	✓	✓	✓	✓	✓
ES2434907-008	25-Oct-2024 00:00	CZ4e_MW02_W	✓	✓	✓	✓	✓	✓	✓
ES2434907-009	25-Oct-2024 00:00	CZ4e_MW03_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) WATER No analysis requested	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - W-05 TRH/BTEXN/8 Metals
ES2434907-003	23-Oct-2024 00:00	CZ1_BH13_W		✓	
ES2434907-004	23-Oct-2024 00:00	CZ5_MW09		✓	
ES2434907-005	23-Oct-2024 00:00	SMW_ENV145_W		✓	
ES2434907-006	23-Oct-2024 00:00	SMW_ENV039_W		✓	
ES2434907-007	23-Oct-2024 00:00	RS05			✓
ES2434907-008	25-Oct-2024 00:00	CZ4e_MW02_W		✓	
ES2434907-009	25-Oct-2024 00:00	CZ4e_MW03_W		✓	
ES2434907-010	25-Oct-2024 00:00	RS07			✓
ES2434907-011	23-Oct-2024 00:00	Trip Blank 6	✓		
ES2434907-012	23-Oct-2024 00:00	Trip Spike 6	✓		

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 Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
CZ1_BH13_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
SMW_ENV039_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
SMW_ENV145_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
EA075: Redox Potential							
CZ1_BH13_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
SMW_ENV039_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
SMW_ENV145_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
EP025: Oxygen - Dissolved							
CZ1_BH13_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
SMW_ENV039_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----
SMW_ENV145_W	Clear Plastic Bottle - Natural	----	23-Oct-2024	25-Oct-2024	×	----	----

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

JONATHAN PICKERDEN

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

NATALIE CHANDRA

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2434907**	Page	: 1 of 33
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 25-Oct-2024 14:05
Order number	: ----	Date Analysis Commenced	: 26-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024 17:51
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES24EPIENV0004		
No. of samples received	: 12		
No. of samples analysed	: 10		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), 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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene 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.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- TDS by method EA-015 sample 5,6 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- 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.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- 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	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	6.78	6.36	6.40
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	26100	10200	22800
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	19400	6860	18100
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	----	260	117	282
pH Redox	----	0.01	pH Unit	----	----	6.63	6.10	6.28
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	----	----	242	139	128
Total Alkalinity as CaCO3	----	1	mg/L	----	----	242	139	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	2290	461	1140
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	8970	3480	8160
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	262	87	747
Magnesium	7439-95-4	1	mg/L	----	----	585	210	404
Sodium	7440-23-5	1	mg/L	----	----	5880	2060	4310
Potassium	7440-09-7	1	mg/L	----	----	167	8	17
ED093F: SAR and Hardness Calculations								
Total Hardness as CaCO3	----	1	mg/L	----	----	3060	1080	3530
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	<0.10	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.010	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0010	<0.0001	<0.0001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	----	----	<0.010	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	<0.010	**0.012**	**0.066**
Nickel	7440-02-0	0.001	mg/L	----	----	<0.010	**0.007**	**0.007**
Lead	7439-92-1	0.001	mg/L	----	----	<0.010	**0.001**	<0.001
Zinc	7440-66-6	0.005	mg/L	----	----	<0.050	**0.015**	**0.009**
Manganese	7439-96-5	0.001	mg/L	----	----	**0.552**	**0.122**	**0.170**
Iron	7439-89-6	0.05	mg/L	----	----	**1.95**	**1.52**	**0.76**
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
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	**0.33**	**0.10**	**0.29**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	<0.01	<0.01	**0.03**
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	<0.01	<0.01	**0.36**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	<0.01	<0.01	**0.39**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	**0.9**	**0.4**	**0.6**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	----	----	**0.9**	**0.4**	**1.0**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	**0.16**	**0.04**	**0.07**
EK071G: Reactive Phosphorus as P by discrete analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	<0.01	<0.01	<0.01
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	----	**306**	**110**	**256**
ø Total Cations	----	0.01	meq/L	----	----	**321**	**111**	**258**
ø Ionic Balance	----	0.01	%	----	----	**2.51**	**0.40**	**0.38**
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	----	**6.0**	**4.1**	**4.2**
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	----	----	<1	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	----	----	<0.5	<0.5	<0.5
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
4.4`-DDD	72-54-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	----	----	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
4.4`-DDT	50-29-3	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	----	----	<2.0	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	----	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	----	----	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	----	----	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	----	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	----	----	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	----	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	----	----	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	----	----	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	----	----	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	----	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	----	----	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	----	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	----	----	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	----	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	----	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	----	----	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	----	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	----	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	----	----	<50	<50	<50

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Vinyl chloride	75-01-4	50	µg/L	----	----	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	----	----	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	----	----	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	----	----	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	----	----	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	----	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	----	----	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	----	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	----	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	----	----	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	----	----	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	----	----	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	----	----	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	----	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	----	----	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	----	----	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	----	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	----	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	----	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	----	----	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	5	µg/L	----	----	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	----	----	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	----	----	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	----	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	----	----	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	----	----	<5	<5	<5
Bromoform	75-25-2	5	µg/L	----	----	<5	<5	<5
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	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				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
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	----	----	<2	<2	<2
2-Chlorophenol	95-57-8	2	µg/L	----	----	<2	<2	<2
2-Methylphenol	95-48-7	2	µg/L	----	----	<2	<2	<2
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	----	<4	<4	<4
2-Nitrophenol	88-75-5	2	µg/L	----	----	<2	<2	<2
2.4-Dimethylphenol	105-67-9	2	µg/L	----	----	<2	<2	<2
2.4-Dichlorophenol	120-83-2	2	µg/L	----	----	<2	<2	<2
2.6-Dichlorophenol	87-65-0	2	µg/L	----	----	<2	<2	<2
4-Chloro-3-methylphenol	59-50-7	2	µg/L	----	----	<2	<2	<2
2.4.6-Trichlorophenol	88-06-2	2	µg/L	----	----	<2	<2	<2
2.4.5-Trichlorophenol	95-95-4	2	µg/L	----	----	<2	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	----	----	<4	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	----	----	<2	<2	<2
2-Methylnaphthalene	91-57-6	2	µg/L	----	----	<2	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	----	----	<2	<2	<2
Acenaphthylene	208-96-8	2	µg/L	----	----	<2	<2	<2
Acenaphthene	83-32-9	2	µg/L	----	----	<2	<2	<2
Fluorene	86-73-7	2	µg/L	----	----	<2	<2	<2
Phenanthrene	85-01-8	2	µg/L	----	----	<2	<2	<2
Anthracene	120-12-7	2	µg/L	----	----	<2	<2	<2
Fluoranthene	206-44-0	2	µg/L	----	----	<2	<2	<2
Pyrene	129-00-0	2	µg/L	----	----	<2	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	----	----	<2	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	----	----	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	2	µg/L	----	----	<2	<2	<2
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	----	----	<4	<4	<4
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	----	----	<2	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	----	----	<2	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	----	----	<2	<2	<2
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	----	----	<2	<2	<2
Dibenz(a.h)anthracene	53-70-3	2	µg/L	----	----	<2	<2	<2
Benzo(g.h.i)perylene	191-24-2	2	µg/L	----	----	<2	<2	<2
^ Sum of PAHs	----	2	µg/L	----	----	<2	<2	<2
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	----	----	<2	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	----	<2	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	----	----	<2	<2	<2
Di-n-butyl phthalate	84-74-2	2	µg/L	----	----	<2	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	----	----	<2	<2	<2
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	----	<10	<10	<10
Di-n-octylphthalate	117-84-0	2	µg/L	----	----	<2	<2	<2
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	----	<2	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	----	<2	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	----	<4	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	----	----	<2	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	----	<2	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	----	----	<2	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	----	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	----	<4	<4	<4

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP075D: Nitrosamines - Continued								
Methapyrilene	91-80-5	2	µg/L	----	----	<2	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	----	<2	<2	<2
Acetophenone	98-86-2	2	µg/L	----	----	<2	<2	<2
Nitrobenzene	98-95-3	2	µg/L	----	----	<2	<2	<2
Isophorone	78-59-1	2	µg/L	----	----	<2	<2	<2
2.6-Dinitrotoluene	606-20-2	4	µg/L	----	----	<4	<4	<4
2.4-Dinitrotoluene	121-14-2	4	µg/L	----	----	<4	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	----	----	<2	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	----	<2	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	----	<2	<2	<2
Azobenzene	103-33-3	2	µg/L	----	----	<2	<2	<2
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	----	----	<2	<2	<2
Phenacetin	62-44-2	2	µg/L	----	----	<2	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	----	----	<2	<2	<2
Pentachloronitrobenzene	82-68-8	2	µg/L	----	----	<2	<2	<2
Pronamide	23950-58-5	2	µg/L	----	----	<2	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	----	<2	<2	<2
Chlorobenzilate	510-15-6	2	µg/L	----	----	<2	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	----	----	<2	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	----	----	<2	<2	<2
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	----	----	<2	<2	<2
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	----	----	<2	<2	<2
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	----	----	<2	<2	<2
1.4-Dichlorobenzene	106-46-7	2	µg/L	----	----	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP075G: Chlorinated Hydrocarbons - Continued								
1.2-Dichlorobenzene	95-50-1	2	µg/L	----	----	<2	<2	<2
Hexachloroethane	67-72-1	2	µg/L	----	----	<2	<2	<2
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	----	----	<2	<2	<2
Hexachloropropylene	1888-71-7	2	µg/L	----	----	<2	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	----	----	<2	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	----	----	<10	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	----	----	<2	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	----	----	<4	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	----	----	<2	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	----	----	<2	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	----	----	<4	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	----	----	<4	<4	<4
Dibenzofuran	132-64-9	2	µg/L	----	----	<2	<2	<2
4-Nitroaniline	100-01-6	2	µg/L	----	----	<2	<2	<2
Carbazole	86-74-8	2	µg/L	----	----	<2	<2	<2
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	----	----	<2	<2	<2
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	----	----	<2	<2	<2
beta-BHC	319-85-7	2	µg/L	----	----	<2	<2	<2
gamma-BHC - (Lindane)	58-89-9	2	µg/L	----	----	<2	<2	<2
delta-BHC	319-86-8	2	µg/L	----	----	<2	<2	<2
Heptachlor	76-44-8	2	µg/L	----	----	<2	<2	<2
Aldrin	309-00-2	2	µg/L	----	----	<2	<2	<2
Heptachlor epoxide	1024-57-3	2	µg/L	----	----	<2	<2	<2
alpha-Endosulfan	959-98-8	2	µg/L	----	----	<2	<2	<2
4.4`-DDE	72-55-9	2	µg/L	----	----	<2	<2	<2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
Dieldrin	60-57-1	2	µg/L	----	----	<2	<2	<2
Endrin	72-20-8	2	µg/L	----	----	<2	<2	<2
beta-Endosulfan	33213-65-9	2	µg/L	----	----	<2	<2	<2
4.4`-DDD	72-54-8	2	µg/L	----	----	<2	<2	<2
Endosulfan sulfate	1031-07-8	2	µg/L	----	----	<2	<2	<2
4.4`-DDT	50-29-3	4	µg/L	----	----	<4	<4	<4
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	----	----	<4	<4	<4
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	----	----	<4	<4	<4
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	----	----	<2	<2	<2
Dimethoate	60-51-5	2	µg/L	----	----	<2	<2	<2
Diazinon	333-41-5	2	µg/L	----	----	<2	<2	<2
Chlorpyrifos-methyl	5598-13-0	2	µg/L	----	----	<2	<2	<2
Malathion	121-75-5	2	µg/L	----	----	<2	<2	<2
Fenthion	55-38-9	2	µg/L	----	----	<2	<2	<2
Chlorpyrifos	2921-88-2	2	µg/L	----	----	<2	<2	<2
Pirimphos-ethyl	23505-41-1	2	µg/L	----	----	<2	<2	<2
Chlorfenvinphos	470-90-6	2	µg/L	----	----	<2	<2	<2
Prothiofos	34643-46-4	2	µg/L	----	----	<2	<2	<2
Ethion	563-12-2	2	µg/L	----	----	<2	<2	<2
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	<100	<100
C29 - C36 Fraction	----	50	µg/L	----	----	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	<50	<50	<50

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
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	<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	**19**	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	**16**	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	**16**	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	**17**	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	**17**	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	**34**	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	**85**	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	**20**	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	----	----	**0.41**	**0.11**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	----	----	**1.11**	**0.11**	<0.01
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	----	----	**0.46**	<0.01	<0.01
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	----	----	**0.08**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	----	**0.35**	**0.05**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	----	**0.04**	<0.02	<0.02

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	----	**0.07**	<0.01	<0.01
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	----	**1.57**	**0.11**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	----	**2.52**	**0.27**	<0.01
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	----	**82.9**	**89.6**	**71.2**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	**75.9**	**78.7**	**70.9**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	**64.4**	**67.3**	**59.7**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	----	**103**	**106**	**109**
Toluene-D8	2037-26-5	5	%	----	----	**104**	**109**	**109**
4-Bromofluorobenzene	460-00-4	5	%	----	----	**100**	**102**	**104**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	----	**20.7**	**21.3**	**20.5**
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	**48.6**	**53.3**	**35.6**
2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	**54.9**	**65.6**	**55.9**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	**66.5**	**76.4**	**57.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	TB03	TS03	CZ1_BH13_W	CZ5_MW09	SMW_ENV145_W
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00	23-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-001	ES2434907-002	ES2434907-003	ES2434907-004	ES2434907-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	----	----	71.2	80.4	60.8
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	86.6	84.2	69.1
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	----	----	23.6	24.6	12.8
Phenol-d6	13127-88-3	2	%	----	----	14.8	15.2	11.4
2-Chlorophenol-D4	93951-73-6	2	%	----	----	41.2	45.1	30.8
2.4.6-Tribromophenol	118-79-6	2	%	----	----	27.0	39.1	25.0
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	----	----	42.3	46.0	35.3
1.2-Dichlorobenzene-D4	2199-69-1	2	%	----	----	41.8	47.0	35.0
2-Fluorobiphenyl	321-60-8	2	%	----	----	45.5	53.4	37.8
Anthracene-d10	1719-06-8	2	%	----	----	42.6	48.2	47.3
4-Terphenyl-d14	1718-51-0	2	%	----	----	65.2	75.3	57.1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	118	120	121	124	128
Toluene-D8	2037-26-5	2	%	104	101	98.6	103	106
4-Bromofluorobenzene	460-00-4	2	%	104	105	103	105	107
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	----	98.7	97.5	102
13C8-PFOA	----	0.02	%	----	----	100	95.7	93.1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.83**	----	**5.58**	**5.88**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**26600**	----	**17400**	**5000**	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**20800**	----	**13000**	**3350**	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**261**	----	**226**	**249**	----
pH Redox	----	0.01	pH Unit	**6.55**	----	**5.29**	**5.54**	----
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	**448**	----	**28**	**39**	----
Total Alkalinity as CaCO3	----	1	mg/L	**448**	----	**28**	**39**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**1810**	----	**996**	**650**	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**9250**	----	**6240**	**1230**	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**399**	----	**75**	**34**	----
Magnesium	7439-95-4	1	mg/L	**876**	----	**471**	**86**	----
Sodium	7440-23-5	1	mg/L	**5360**	----	**3430**	**1040**	----
Potassium	7440-09-7	1	mg/L	**27**	----	**8**	**2**	----
ED093F: SAR and Hardness Calculations								
Total Hardness as CaCO3	----	1	mg/L	**4600**	----	**2130**	**439**	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.10	----	**0.63**	**0.06**	----
Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.001	**0.002**	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0001	**0.0002**	**0.0001**	<0.0001

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Chromium	7440-47-3	0.001	mg/L	<0.010	<0.001	**0.003**	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	**0.153**	<0.001	**0.073**	**0.004**	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.010	<0.001	**0.106**	**0.014**	<0.001
Lead	7439-92-1	0.001	mg/L	<0.010	<0.001	**0.002**	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.050	<0.005	**0.111**	**0.043**	<0.005
Manganese	7439-96-5	0.001	mg/L	**1.18**	----	**0.386**	**0.638**	----
Iron	7439-89-6	0.05	mg/L	**10.6**	----	**2.07**	**0.53**	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<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	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	----	<0.01	<0.01	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.75**	----	**0.10**	<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	----	<0.01	**0.10**	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	<0.01	**0.10**	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.9**	----	**0.3**	**0.2**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**0.9**	----	**0.3**	**0.3**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.02**	----	**0.08**	**0.04**	----
EK071G: Reactive Phosphorus as P by discrete analyser								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	<0.01	<0.01	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**308**	----	**197**	**49.0**	----
ø Total Cations	----	0.01	meq/L	**326**	----	**192**	**54.1**	----
ø Ionic Balance	----	0.01	%	**2.88**	----	**1.39**	**4.90**	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**2.9**	----	**3.9**	**3.8**	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	----	<1	<1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	----	<0.5	<0.5	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	----	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	----	<2.0	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	<0.5	<0.5	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	<2.0	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	<5	<5	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	----	<5	<5	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	----	<5	<5	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	<5	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	<5	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	<50	<50	----
Chloromethane	74-87-3	50	µg/L	<50	----	<50	<50	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Vinyl chloride	75-01-4	50	µg/L	<50	----	<50	<50	----
Bromomethane	74-83-9	50	µg/L	<50	----	<50	<50	----
Chloroethane	75-00-3	50	µg/L	<50	----	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	<50	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	----	<5	<5	----
Iodomethane	74-88-4	5	µg/L	<5	----	<5	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	----	<5	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	----	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	----	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	----	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	----	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	----	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	----	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	----	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	----	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	----	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	<5	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	----	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	<5	<5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
Bromobenzene	108-86-1	5	µg/L	<5	----	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	----	<5	<5	----
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	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				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	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	----	<2	<2	----
2-Chlorophenol	95-57-8	2	µg/L	<2	----	<2	<2	----
2-Methylphenol	95-48-7	2	µg/L	<2	----	<2	<2	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	----	<4	<4	----
2-Nitrophenol	88-75-5	2	µg/L	<2	----	<2	<2	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	----	<2	<2	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	----	<2	<2	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	----	<2	<2	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	----	<2	<2	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	----	<2	<2	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	----	<2	<2	----
Pentachlorophenol	87-86-5	4	µg/L	<4	----	<4	<4	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	----	<2	<2	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	----	<2	<2	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	----	<2	<2	----
Acenaphthylene	208-96-8	2	µg/L	<2	----	<2	<2	----
Acenaphthene	83-32-9	2	µg/L	<2	----	<2	<2	----
Fluorene	86-73-7	2	µg/L	<2	----	<2	<2	----
Phenanthrene	85-01-8	2	µg/L	<2	----	<2	<2	----
Anthracene	120-12-7	2	µg/L	<2	----	<2	<2	----
Fluoranthene	206-44-0	2	µg/L	<2	----	<2	<2	----
Pyrene	129-00-0	2	µg/L	<2	----	<2	<2	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	----	<2	<2	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	2	µg/L	<2	----	<2	<2	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	----	<4	<4	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	----	<2	<2	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	----	<2	<2	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	----	<2	<2	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	----	<2	<2	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	----	<2	<2	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	----	<2	<2	----
^ **Sum of PAHs**	----	2	µg/L	<2	----	<2	<2	----
^ **Benzo(a)pyrene TEQ (zero)**	----	2	µg/L	<2	----	<2	<2	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	----	<2	<2	----
Diethyl phthalate	84-66-2	2	µg/L	<2	----	<2	<2	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	----	<2	<2	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	----	<2	<2	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	----	<10	<10	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	----	<2	<2	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	----	<2	<2	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	----	<2	<2	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	----	<4	<4	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	----	<2	<2	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	----	<2	<2	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	----	<2	<2	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	----	<2	<2	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	----	<4	<4	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP075D: Nitrosamines - Continued								
Methapyrilene	91-80-5	2	µg/L	<2	----	<2	<2	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	----	<2	<2	----
Acetophenone	98-86-2	2	µg/L	<2	----	<2	<2	----
Nitrobenzene	98-95-3	2	µg/L	<2	----	<2	<2	----
Isophorone	78-59-1	2	µg/L	<2	----	<2	<2	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	----	<4	<4	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	----	<4	<4	----
1-Naphthylamine	134-32-7	2	µg/L	<2	----	<2	<2	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	----	<2	<2	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	----	<2	<2	----
Azobenzene	103-33-3	2	µg/L	<2	----	<2	<2	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	----	<2	<2	----
Phenacetin	62-44-2	2	µg/L	<2	----	<2	<2	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	----	<2	<2	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	----	<2	<2	----
Pronamide	23950-58-5	2	µg/L	<2	----	<2	<2	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	----	<2	<2	----
Chlorobenzilate	510-15-6	2	µg/L	<2	----	<2	<2	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	----	<2	<2	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	----	<2	<2	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	----	<2	<2	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	----	<2	<2	----
EP075G: Chlorinated Hydrocarbons								
1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	----	<2	<2	----
1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP075G: Chlorinated Hydrocarbons - Continued								
1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	----	<2	<2	----
Hexachloroethane	67-72-1	2	µg/L	<2	----	<2	<2	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	----	<2	<2	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	----	<2	<2	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	----	<2	<2	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	----	<10	<10	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	----	<2	<2	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	----	<4	<4	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	----	<2	<2	----
4-Chloroaniline	106-47-8	2	µg/L	<2	----	<2	<2	----
2-Nitroaniline	88-74-4	4	µg/L	<4	----	<4	<4	----
3-Nitroaniline	99-09-2	4	µg/L	<4	----	<4	<4	----
Dibenzofuran	132-64-9	2	µg/L	<2	----	<2	<2	----
4-Nitroaniline	100-01-6	2	µg/L	<2	----	<2	<2	----
Carbazole	86-74-8	2	µg/L	<2	----	<2	<2	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	----	<2	<2	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	----	<2	<2	----
beta-BHC	319-85-7	2	µg/L	<2	----	<2	<2	----
gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	----	<2	<2	----
delta-BHC	319-86-8	2	µg/L	<2	----	<2	<2	----
Heptachlor	76-44-8	2	µg/L	<2	----	<2	<2	----
Aldrin	309-00-2	2	µg/L	<2	----	<2	<2	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	----	<2	<2	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	----	<2	<2	----
4.4`-DDE	72-55-9	2	µg/L	<2	----	<2	<2	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
Dieldrin	60-57-1	2	µg/L	<2	----	<2	<2	----
Endrin	72-20-8	2	µg/L	<2	----	<2	<2	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	----	<2	<2	----
4.4`-DDD	72-54-8	2	µg/L	<2	----	<2	<2	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	----	<2	<2	----
4.4`-DDT	50-29-3	4	µg/L	<4	----	<4	<4	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	4	µg/L	<4	----	<4	<4	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	4	µg/L	<4	----	<4	<4	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	----	<2	<2	----
Dimethoate	60-51-5	2	µg/L	<2	----	<2	<2	----
Diazinon	333-41-5	2	µg/L	<2	----	<2	<2	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	----	<2	<2	----
Malathion	121-75-5	2	µg/L	<2	----	<2	<2	----
Fenthion	55-38-9	2	µg/L	<2	----	<2	<2	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	----	<2	<2	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	----	<2	<2	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	----	<2	<2	----
Prothiofos	34643-46-4	2	µg/L	<2	----	<2	<2	----
Ethion	563-12-2	2	µg/L	<2	----	<2	<2	----
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	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
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	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	<100	<100	<100	<100
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	<100	<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								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	<0.02	**0.03**	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	<0.01	**0.03**	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	<0.01	<0.01	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	<0.02	**0.03**	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	<0.02	<0.02	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	<0.01	<0.01	----
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 PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	----	<0.01	**0.03**	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	<0.01	**0.09**	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**99.0**	----	**90.0**	**85.6**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**93.1**	----	**80.2**	**85.5**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**76.9**	----	**70.3**	**74.4**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**101**	----	**100**	**104**	----
Toluene-D8	2037-26-5	5	%	**101**	----	**101**	**103**	----
4-Bromofluorobenzene	460-00-4	5	%	**98.8**	----	**96.2**	**98.2**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**23.5**	----	**22.2**	**22.7**	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**54.6**	----	**50.5**	**49.9**	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**60.2**	----	**61.4**	**66.0**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**78.6**	----	**69.8**	**70.8**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_ENV039_W	RS05	CZ4e_MW02_W	CZ4e_MW03_W	RS07
			Sampling date / time	23-Oct-2024 00:00	23-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	ES2434907-006	ES2434907-007	ES2434907-008	ES2434907-009	ES2434907-010
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	**82.9**	----	**74.2**	**79.0**	----
4-Terphenyl-d14	1718-51-0	1.0	%	**81.5**	----	**81.4**	**78.3**	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	**29.4**	----	**24.2**	**24.4**	----
Phenol-d6	13127-88-3	2	%	**19.0**	----	**15.8**	**15.7**	----
2-Chlorophenol-D4	93951-73-6	2	%	**49.2**	----	**42.8**	**44.0**	----
2.4.6-Tribromophenol	118-79-6	2	%	**33.7**	----	**42.8**	**43.4**	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	**49.2**	----	**47.4**	**48.5**	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	**51.1**	----	**41.2**	**42.6**	----
2-Fluorobiphenyl	321-60-8	2	%	**55.4**	----	**54.0**	**54.6**	----
Anthracene-d10	1719-06-8	2	%	**53.7**	----	**63.3**	**72.2**	----
4-Terphenyl-d14	1718-51-0	2	%	**80.0**	----	**67.6**	**70.1**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**119**	**120**	**118**	**122**	**117**
Toluene-D8	2037-26-5	2	%	**95.8**	**98.9**	**97.6**	**97.9**	**94.1**
4-Bromofluorobenzene	460-00-4	2	%	**101**	**101**	**99.6**	**102**	**98.7**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**100**	----	**99.3**	**101**	----
13C8-PFOA	----	0.02	%	**94.3**	----	**96.4**	**96.4**	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
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
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
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

QUALITY CONTROL REPORT

Work Order	: **ES2434907**	Page	: 1 of 21
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 25-Oct-2024
Order number	: ----	Date Analysis Commenced	: 26-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024
Sampler	: NATALIE CHANDRA		
Site	: ----		
Quote number	: ES24EPIENV0004		
No. of samples received	: 12		
No. of samples analysed	: 10		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6148218)									
ES2434906-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.35	7.34	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 6148215)									
EN2413611-009	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1990	2010	1.0	0% - 20%
ES2434769-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	291	286	1.8	0% - 20%
ES2434906-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	514	513	0.2	0% - 20%
ES2434766-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	755	756	0.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 6150322)									
ES2434622-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	408	394	3.7	0% - 20%
ES2434828-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	140	141	0.0	0% - 50%
ES2434907-006	SMW_ENV039_W	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	20800	21200	2.1	0% - 20%
EA075: Redox Potential (QC Lot: 6155511)									
ES2434769-001	Anonymous	EA075: Redox Potential	----	0.1	mV	186	190	1.9	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.19	7.21	0.3	0% - 20%
ES2435027-001	Anonymous	EA075: Redox Potential	----	0.1	mV	204	200	2.0	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.42	7.43	0.1	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6148217)									
ES2434906-005	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	107	106	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	107	106	0.0	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
ED037P: Alkalinity by PC Titrator (QC Lot: 6148217) - continued									
ES2434766-003	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	41	40	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	41	40	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 6148219)									
ES2434907-009	CZ4e_MW03_W	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	39	39	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	39	39	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6147446)									
ES2434907-004	CZ5_MW09	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	461	454	1.6	0% - 20%
ES2434904-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1 (10)*	mg/L	<10	15	39.2	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 6147444)									
ES2434907-004	CZ5_MW09	ED045G: Chloride	16887-00-6	1	mg/L	3480	3520	1.3	0% - 20%
ES2434904-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	8	8	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 6151715)									
ES2434739-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	116	115	1.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	15	10	40.3	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	56	51	7.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
ES2434907-008	CZ4e_MW02_W	ED093F: Calcium	7440-70-2	1	mg/L	75	74	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	471	471	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3430	3440	0.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6151716)									
ES2434906-005	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	0.003	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: Manganese	7439-96-5	0.001	mg/L	1.47	1.51	2.1	0% - 20%
		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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	14.6	14.8	1.4	0% - 20%
ES2434907-008	CZ4e_MW02_W	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.003	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6151716) - continued									
ES2434907-008	CZ4e_MW02_W	EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.073	0.074	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.386	0.387	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.106	0.107	1.7	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.111	0.112	0.0	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.63	0.64	0.0	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	2.07	2.06	0.5	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 6152976)									
ES2434907-007	RS05	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: Manganese	7439-96-5	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
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6151717)									
ES2434906-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2434907-008	CZ4e_MW02_W	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 6152979)									
ES2434907-010	RS07	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 6151513)									
ES2434587-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434906-007	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.02	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6151988)									
ES2434906-004	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	5.54	5.64	1.8	0% - 20%
ES2434907-009	CZ4e_MW03_W	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.04	122	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6147447)									
ES2434907-004	CZ5_MW09	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434904-001	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: 6151989)									
ES2434906-004	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434907-009	CZ4e_MW03_W	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.10	0.15	45.1	0% - 50%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6151993)									
ES2434906-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.2)*	mg/L	6.5	6.3	2.5	0% - 20%
EW2404901-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	99.1	100	1.2	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6151992)									
ES2434906-004	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.02)*	mg/L	0.29	0.27	8.2	0% - 50%
EW2404901-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.20)*	mg/L	13.7	14.2	4.2	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6147445)									
ES2434907-004	CZ5_MW09	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2434904-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.22	0.21	0.0	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 6148128)									

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 (%)
EP074C: Sulfonated Compounds (QC Lot: 6148128) - continued									
ES2434769-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 6148128) - continued									
ES2434769-001	Anonymous	EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP074F: Halogenated Aromatic Compounds (QC Lot: 6148128) - continued									
ES2434907-006	SMW_ENV039_W	EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 6148128)									
ES2434769-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6148127)									
ES2434769-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6148127)									
ES2434769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2434907-006	SMW_ENV039_W	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6148127)									
ES2434769-001	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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
ES2434907-006	SMW_ENV039_W	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	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6148218)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 6148215)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	93.6	89.9	110
				<1	2100 µS/cm	93.9	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 6150322)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.1	87.0	109
				<10	293 mg/L	104	75.2	126
				<10	2410 mg/L	105	83.0	124
EA075: Redox Potential (QCLot: 6155511)								
EA075: Redox Potential	----	----	mV	----	234 mV	98.5	96.0	106
				----	300 mV	99.9	97.0	105
				----	86 mV	100	89.0	111
ED037P: Alkalinity by PC Titrator (QCLot: 6148217)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	109	80.0	128
ED037P: Alkalinity by PC Titrator (QCLot: 6148219)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	102	81.0	115
				----	50 mg/L	112	80.0	128
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6147446)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	101	82.0	122
				<1	500 mg/L	96.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 6147444)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	88.6	80.9	127
				<1	1000 mg/L	97.6	80.9	127
ED093F: Dissolved Major Cations (QCLot: 6151715)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	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	104	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716) - continued								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	91.5	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.9	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.1	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.5	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.3	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.1	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.6	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	91.4	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 6152976)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	95.7	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.5	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.3	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.6	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.5	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.4	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	92.4	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 6151717)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.7	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 6152979)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.8	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 6151513)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	100.0	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6151988)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	103	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6147447)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.9	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6151989)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	102	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151993)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151993) - continued								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	89.2	69.0	123
				<0.1	1 mg/L	109	70.0	123
				<0.1	5 mg/L	94.6	70.0	123
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151992)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	92.6	71.3	126
				<0.01	0.442 mg/L	101	71.3	126
				<0.01	1 mg/L	96.4	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6147445)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.8	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 6147524)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	95.6	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 6147525)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	83.8	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	90.2	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	82.0	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	84.8	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	93.6	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	80.1	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	78.4	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	85.8	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	82.6	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	84.8	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	85.6	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	92.4	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	87.0	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	96.1	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	86.0	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	87.8	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	95.4	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	76.5	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	83.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	89.3	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	79.8	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6147525)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6147525) - continued								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	82.6	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	89.2	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.3	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	78.9	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	90.9	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	86.2	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	81.7	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	86.3	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	84.3	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	83.3	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	81.0	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	91.3	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	104	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	85.8	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	88.6	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	75.6	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	79.6	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	77.9	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	71.0	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 6148128)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	96.3	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	99.9	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	99.4	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	101	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	101	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.3	65.0	123
EP074B: Oxygenated Compounds (QCLot: 6148128)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	105	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	96.4	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	91.7	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	90.6	65.0	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 6148128)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	103	72.8	127
EP074D: Fumigants (QCLot: 6148128)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	99.7	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	95.2	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	93.1	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	93.2	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	98.8	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 6148128)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	97.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	104	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	96.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	105	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	103	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	104	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	105	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	91.8	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	86.6	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.4	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	95.8	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	96.5	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	97.0	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	104	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	101	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.6	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	99.4	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	95.6	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	92.8	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	98.6	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100.0	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	115	71.8	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6148128) - continued								
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.4	66.4	136
EP074F: Halogenated Aromatic Compounds (QCLot: 6148128)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	103	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	107	67.0	123
EP074G: Trihalomethanes (QCLot: 6148128)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	96.9	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.3	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	91.6	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 6147523)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	79.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	72.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	77.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	74.5	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	89.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	92.6	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	94.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	91.0	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	86.7	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	91.7	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	83.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	94.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	91.3	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	82.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	80.2	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	81.0	59.1	118
EP075A: Phenolic Compounds (QCLot: 6147526)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	32.2	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	63.6	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	60.3	50.0	94.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP075A: Phenolic Compounds (QCLot: 6147526) - continued								
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	47.7	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	71.4	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	# 39.7	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	74.3	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	72.9	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	75.7	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	78.3	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	85.7	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	46.9	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 6147526)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	69.0	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	73.5	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	82.1	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	85.6	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	78.7	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	85.4	65.2	107
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	86.4	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	87.8	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	91.4	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	90.5	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	89.2	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	95.8	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	101	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	97.5	60.1	111
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	79.9	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	102	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	83.9	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	93.5	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	93.1	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	95.2	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters (QCLot: 6147526)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	94.1	64.3	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075C: Phthalate Esters (QCLot: 6147526) - continued								
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	# 117	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	88.8	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	89.5	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	92.5	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	85.0	62.1	115
EP075D: Nitrosamines (QCLot: 6147526)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	48.0	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	65.2	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	59.4	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	58.9	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	78.8	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	76.1	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	71.2	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	87.3	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	89.1	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 6147526)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	43.1	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	74.8	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	68.9	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	81.7	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	91.3	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	83.2	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	71.3	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	93.1	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	85.2	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	88.6	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	79.5	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	72.2	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	# 37.1	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	84.6	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	84.3	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	76.1	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	87.9	57.7	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075F: Haloethers (QCLot: 6147526)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	76.6	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	77.4	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	83.2	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	84.9	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 6147526)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	62.6	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	61.4	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	63.4	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	61.1	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	66.7	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	64.3	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	64.8	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	85.2	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	78.8	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	87.3	65.7	110
EP075H: Anilines and Benzidines (QCLot: 6147526)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	# 47.9	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	64.3	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	86.1	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	76.1	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	80.3	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	70.8	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	85.6	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	70.3	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 6147526)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	86.9	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	88.9	53.0	107
EP075: gamma-BHC - (Lindane)	58-89-9	2	µg/L	<2	10 µg/L	90.1	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	87.8	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	85.9	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	84.2	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	84.4	50.0	118
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	83.0	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	88.2	53.0	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 6147526) - continued								
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	87.0	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	85.7	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	87.8	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	85.7	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	92.3	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	91.7	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 6147526)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	90.6	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	77.9	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	86.4	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	89.2	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	96.0	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	88.1	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	85.3	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	85.0	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	84.2	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	90.6	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	101	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6147522)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	75.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	87.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.1	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148127)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	91.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6147522)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	56.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	98.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	72.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148127)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.0	75.0	127
EP080: BTEXN (QCLot: 6148127)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080: BTEXN (QCLot: 6148127) - continued								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	109	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.8	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	107	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 6150361)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	130	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	109	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	110	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 6150361)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	110	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	98.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.3	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	118	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6150361)								
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	130	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	88.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	106	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6147446)							
ES2434904-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	112	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 6147444)							
ES2434904-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	95.2	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716)							

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 6151716) - continued							
ES2434906-004	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	95.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	87.7	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	87.3	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	89.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	76.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	84.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	88.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	90.7	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 6152976)							
EW2404945-001	Anonymous	EG020A-F: Arsenic	7440-38-2	10 mg/L	92.0	70.0	130
		EG020A-F: Cadmium	7440-43-9	2.5 mg/L	95.6	70.0	130
		EG020A-F: Chromium	7440-47-3	10 mg/L	79.4	70.0	130
		EG020A-F: Copper	7440-50-8	10 mg/L	90.2	70.0	130
		EG020A-F: Lead	7439-92-1	10 mg/L	77.3	70.0	130
		EG020A-F: Manganese	7439-96-5	10 mg/L	97.0	70.0	130
		EG020A-F: Nickel	7440-02-0	10 mg/L	97.0	70.0	130
		EG020A-F: Zinc	7440-66-6	10 mg/L	97.6	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6151717)							
ES2434769-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	99.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 6152979)							
ES2434907-007	RS05	EG035F: Mercury	7439-97-6	0.01 mg/L	101	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 6151513)							
ES2434587-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.5 mg/L	104	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 6151988)							
ES2434906-004	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6147447)							
ES2434904-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	114	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6151989)							
ES2434906-004	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	103	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6151993)							
ES2434906-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	82.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6151992)							
ES2434906-005	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	93.6	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6147445)							
ES2434904-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	107	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 6148128)							
ES2434769-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	105	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	107	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 6148128)							
ES2434769-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	114	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6148127)							
ES2434769-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6148127)							
ES2434769-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	110	70.0	130
EP080: BTEXN (QCLot: 6148127)							
ES2434769-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	117	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	108	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	109	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	117	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	111	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2434907**	Page	: 1 of 17
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL220037.10	Date Samples Received	: 25-Oct-2024
Site	: ----	Issue Date	: 31-Oct-2024
Sampler	: NATALIE CHANDRA	No. of samples received	: 12
Order number	: ----	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds	QC-6147526-002	----	**2.4-Dimethylphenol**	105-67-9	39.7 %	50.0-94.0%	**Recovery less than lower control limit**
EP075C: Phthalate Esters	QC-6147526-002	----	**Diethyl phthalate**	84-66-2	117 %	67.3-111%	**Recovery greater than upper control limit**
EP075E: Nitroaromatics and Ketones	QC-6147526-002	----	**4-Aminobiphenyl**	92-67-1	37.1 %	60.1-112%	**Recovery less than lower control limit**
EP075H: Anilines and Benzidines	QC-6147526-002	----	**Aniline**	62-53-3	47.9 %	50.0-104%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EK055G: Ammonia as N by Discrete Analyser	ES2434906--004	Anonymous	**Ammonia as N**	7664-41-7	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							
CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	----	----	----	28-Oct-2024	23-Oct-2024	**5**
Clear Plastic Bottle - Natural							
CZ4e_MW02_W,	CZ4e_MW03_W	----	----	----	28-Oct-2024	25-Oct-2024	**3**
EA075: Redox Potential							
Clear Plastic Bottle - Natural							
CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	----	----	----	30-Oct-2024	23-Oct-2024	**7**
Clear Plastic Bottle - Natural							
CZ4e_MW02_W,	CZ4e_MW03_W	----	----	----	30-Oct-2024	25-Oct-2024	**5**
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	----	----	----	26-Oct-2024	25-Oct-2024	**1**
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural							
CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	----	----	----	26-Oct-2024	25-Oct-2024	**1**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	----	----	----	26-Oct-2024	23-Oct-2024	**3**

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						
CZ4e_MW02_W, CZ4e_MW03_W	----	----	----	26-Oct-2024	25-Oct-2024	**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	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	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
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	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)							
CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**----**	----	----	**28-Oct-2024**	23-Oct-2024	✘
Clear Plastic Bottle - Natural (EA005-P)							
CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**----**	----	----	**28-Oct-2024**	25-Oct-2024	✘

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**28-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Natural (EA010-P) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**28-Oct-2024**	22-Nov-2024	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**28-Oct-2024**	30-Oct-2024	✓
Clear Plastic Bottle - Natural (EA015H) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**28-Oct-2024**	01-Nov-2024	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**30-Oct-2024**	23-Oct-2024	✗
Clear Plastic Bottle - Natural (EA075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**30-Oct-2024**	25-Oct-2024	✗
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**28-Oct-2024**	06-Nov-2024	✓
Clear Plastic Bottle - Natural (ED037-P) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**28-Oct-2024**	08-Nov-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**26-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Natural (ED041G) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**26-Oct-2024**	22-Nov-2024	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**26-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Natural (ED045G) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**26-Oct-2024**	22-Nov-2024	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**29-Oct-2024**	22-Nov-2024	✓

Matrix: **WATER**

Evaluation: ✘ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
ED093F: SAR and Hardness Calculations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**----**	----	----	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**----**	----	----	**29-Oct-2024**	22-Nov-2024	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W, RS05	**23-Oct-2024**	**----**	----	----	**29-Oct-2024**	21-Apr-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ4e_MW02_W, CZ4e_MW03_W, RS07	**25-Oct-2024**	**----**	----	----	**29-Oct-2024**	23-Apr-2025	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**----**	----	----	**30-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RS05	**23-Oct-2024**	**----**	----	----	**31-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**----**	----	----	**30-Oct-2024**	22-Nov-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) RS07	**25-Oct-2024**	**----**	----	----	**31-Oct-2024**	22-Nov-2024	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**----**	----	----	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**----**	----	----	**29-Oct-2024**	22-Nov-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**----**	----	----	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**----**	----	----	**29-Oct-2024**	22-Nov-2024	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**----**	----	----	**26-Oct-2024**	25-Oct-2024	✘
Clear Plastic Bottle - Natural (EK057G) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**----**	----	----	**26-Oct-2024**	27-Oct-2024	✓

Work Order : ES2434907
Client : EPIC ENVIRONMENTAL
Project : SCL220037.10

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation* *Date extracted*	*Due for extraction*	*Evaluation*	*Analysis* *Date analysed*	*Due for analysis*	*Evaluation*
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**29-Oct-2024**	22-Nov-2024	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**29-Oct-2024**	20-Nov-2024	✓	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**29-Oct-2024**	22-Nov-2024	✓	**29-Oct-2024**	22-Nov-2024	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**29-Oct-2024**	20-Nov-2024	✓	**29-Oct-2024**	20-Nov-2024	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**29-Oct-2024**	22-Nov-2024	✓	**29-Oct-2024**	22-Nov-2024	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**26-Oct-2024**	25-Oct-2024	✗
Clear Plastic Bottle - Natural (EK071G) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**26-Oct-2024**	27-Oct-2024	✓
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	----	----	----	**26-Oct-2024**	23-Oct-2024	✗
Clear Plastic Bottle - Natural (EP025) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	----	----	----	**26-Oct-2024**	25-Oct-2024	✗
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP066) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) CZ1_BH13_W, CZ5_MW09, SMW_ENV145_W, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP068) CZ4e_MW02_W, CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP068) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**29-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**29-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**29-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓
EP074D: Fumigants								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**29-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		23-Oct-2024	28-Oct-2024	06-Nov-2024	✓	28-Oct-2024	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	23-Oct-2024	28-Oct-2024	06-Nov-2024	✓	29-Oct-2024	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	25-Oct-2024	28-Oct-2024	08-Nov-2024	✓	29-Oct-2024	08-Nov-2024	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		23-Oct-2024	28-Oct-2024	06-Nov-2024	✓	28-Oct-2024	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	23-Oct-2024	28-Oct-2024	06-Nov-2024	✓	29-Oct-2024	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	25-Oct-2024	28-Oct-2024	08-Nov-2024	✓	29-Oct-2024	08-Nov-2024	✓
EP074G: Trihalomethanes								
Amber VOC Vial - HCl (EP074) CZ1_BH13_W		23-Oct-2024	28-Oct-2024	06-Nov-2024	✓	28-Oct-2024	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ5_MW09, SMW_ENV039_W	SMW_ENV145_W,	23-Oct-2024	28-Oct-2024	06-Nov-2024	✓	29-Oct-2024	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) CZ4e_MW02_W,	CZ4e_MW03_W	25-Oct-2024	28-Oct-2024	08-Nov-2024	✓	29-Oct-2024	08-Nov-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	23-Oct-2024	28-Oct-2024	30-Oct-2024	✓	29-Oct-2024	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) CZ4e_MW02_W,	CZ4e_MW03_W	25-Oct-2024	28-Oct-2024	01-Nov-2024	✓	29-Oct-2024	07-Dec-2024	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	23-Oct-2024	28-Oct-2024	30-Oct-2024	✓	30-Oct-2024	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	25-Oct-2024	28-Oct-2024	01-Nov-2024	✓	30-Oct-2024	07-Dec-2024	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	23-Oct-2024	28-Oct-2024	30-Oct-2024	✓	30-Oct-2024	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	25-Oct-2024	28-Oct-2024	01-Nov-2024	✓	30-Oct-2024	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP075I: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP075J: Organophosphorus Pesticides								
Amber Glass Bottle - Unpreserved (EP075) CZ1_BH13_W, SMW_ENV145_W,	CZ5_MW09, SMW_ENV039_W	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP075) CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) CZ1_BH13_W, SMW_ENV145_W, RS05	CZ5_MW09, SMW_ENV039_W,	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) CZ4e_MW02_W, RS07	CZ4e_MW03_W,	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - HCl (EP080) CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB03, SMW_ENV145_W, RS05	CZ5_MW09, SMW_ENV039_W,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ4e_MW02_W, RS07	CZ4e_MW03_W,	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) CZ1_BH13_W, SMW_ENV145_W, RS05	CZ5_MW09, SMW_ENV039_W,	**23-Oct-2024**	**28-Oct-2024**	30-Oct-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber Glass Bottle - Unpreserved (EP071) CZ4e_MW02_W, RS07	CZ4e_MW03_W,	**25-Oct-2024**	**28-Oct-2024**	01-Nov-2024	✓	**30-Oct-2024**	07-Dec-2024	✓
Amber VOC Vial - HCl (EP080) CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB03, SMW_ENV145_W, RS05	CZ5_MW09, SMW_ENV039_W,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ4e_MW02_W, RS07	CZ4e_MW03_W,	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - HCl (EP080)								
CZ1_BH13_W		**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
TB03,	TS03,	**23-Oct-2024**	**28-Oct-2024**	06-Nov-2024	✓	**28-Oct-2024**	06-Nov-2024	✓
CZ5_MW09,	SMW_ENV145_W,							
SMW_ENV039_W,	RS05							
Amber VOC Vial - Sulfuric Acid (EP080)								
CZ4e_MW02_W,	CZ4e_MW03_W,	**25-Oct-2024**	**28-Oct-2024**	08-Nov-2024	✓	**29-Oct-2024**	08-Nov-2024	✓
RS07								
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
CZ1_BH13_W,	CZ5_MW09,	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	21-Apr-2025	✓
SMW_ENV145_W,	SMW_ENV039_W							
HDPE (no PTFE) (EP231X)								
CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-2025	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
CZ1_BH13_W,	CZ5_MW09,	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	21-Apr-2025	✓
SMW_ENV145_W,	SMW_ENV039_W							
HDPE (no PTFE) (EP231X)								
CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-2025	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
CZ1_BH13_W,	CZ5_MW09,	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	21-Apr-2025	✓
SMW_ENV145_W,	SMW_ENV039_W							
HDPE (no PTFE) (EP231X)								
CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-2025	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
CZ1_BH13_W,	CZ5_MW09,	**23-Oct-2024**	**29-Oct-2024**	21-Apr-2025	✓	**31-Oct-2024**	21-Apr-2025	✓
SMW_ENV145_W,	SMW_ENV039_W							
HDPE (no PTFE) (EP231X)								
CZ4e_MW02_W,	CZ4e_MW03_W	**25-Oct-2024**	**29-Oct-2024**	23-Apr-2025	✓	**31-Oct-2024**	23-Apr-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	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	17	**17.65**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	18	**11.11**	**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	14	**14.29**	**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	19	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	23	**13.04**	**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	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	14	**0.00**	**10.00**	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	36	**8.33**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	17	**11.76**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	**5.56**	**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	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	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	23	**21.74**	**12.50**	✓	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	3	20	**15.00**	**15.00**	✓	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
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	17	**11.76**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	**5.56**	**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	14	**7.14**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	23	**8.70**	**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	1	20	**5.00**	**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
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	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 *Analytical Methods*	*Method*	*Count* *QC*	 *Regular*	*Rate (%)* ***Actual***	 ***Expected***	 *Evaluation*	*Quality Control Specification*
Matrix Spikes (MS) - Continued							
Chloride by Discrete Analyser	ED045G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	17	**11.76**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	16	**6.25**	**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	14	**7.14**	**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	19	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	9	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	11	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	11	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.14**	**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	1	20	**5.00**	**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
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Redox Potential	EA075	WATER	In house: Ion selective electrode
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) 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 SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 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 thiocynate forms highly-coloured ferric thiocynate 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 (SnCl2)(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 SnCl2 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 Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. 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 seperately 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 othophosphate 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)
Oxygen - Dissolved	EP025	WATER	In house: Referenced to APHA 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
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)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	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. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with 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 LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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.

!!! PLS immediately test pH for
1. SMW-WTP_BH02_W
2. SMW_WTP_ BH03A_W
} as in-situ WQM did not work
Thank you !!

HI

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES24EPIENV0004 V3
Sampled By:	NC	Lab Batch No:	
Phone / Email:		Date Results Required:	**Standard TAT (5 days)**
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au		
Page of		Sample Disposal After:	
Number of Eskies:	2		

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
1	QC01	17/10	W										
1) *	QC02												
2	RS01												
3	SMW_BH057_S												
4	SMW_BH057_W												
5	TS01												
6	TB01												
7	SMW_BH004_S	18/10											
8	SMW_WTP_BH02_W												
9	SMW_WTP_BH03A_W												
10	RS02												
			TOTALS										

LAB ID	Sample ID	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major Ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
1	QC01		✓	✓	✓			✓				
1) *	QC02	+ send			TO	Envirolab						
2	RS01										✓	✓
3	SMW_BH057_S	✓	✓	✓	✓	✓	✓	✓				
4	SMW_BH057_W	✓	✓	✓	✓	✓	✓	✓				
5	TS01									✓		
6	TB01									✓		
7	SMW_BH004_S	✓	✓	✓	✓	✓	✓	✓				
8	SMW_WTP_BH02_W	✓	✓	✓	✓	✓	✓	✓				
9	SMW_WTP_BH03A_W	✓	✓	✓	✓	✓	✓	✓				
10	RS02										✓	✓
	TOTALS	0	0	0	0	0	0	0	0	0	0	0

Relinquished By: NAME Natalie Chandra	SIGNATURE	DATE 18/10	
Received By: NAME Wus	SIGNATURE	DATE 18/10/24 1600	
Custody Seals Intact	Y	N	
Samples Received Chilled	Y	N	
Method of Shipment			

NOTES:

Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C ... minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per ... ety for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method ...
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list ... /8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per ...
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compou... SEPA 8270)

web www.epicenvironmental.com.au
email labs@epicenvironmental.com.au

Epic Environmental Pty Ltd ABN 54 169 579 275

Environmental Division
Sydney
Work Order Reference
ES2434174

Telephone : - 61-2-8784 8555

Subcon / Forward Lab / Split WO
Lab / Analysis: Envirolab - QC02
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 364372
Date Received: 21/10/24
Time Received: 1050
Received By: KW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Enviròlab.

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10
Project/Site:	SCL220037.10
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page of	
Number of Eskies:	

Lab:	~~ALS Sydney~~
Lab Quote No:	~~ES24EPIENV0004 V3~~
Lab Batch No:	
Date Results Required:	Standard TAT (5 days)
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
1	QC02	17/10	W												✓	✓	✓			✓				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

		Y	N
Custody Seals Intact		Y	N
Samples Received Chilled		Y	N
Method of Shipment			

Relinquished By:

NAME Natalie Chandra SIGNATURE DATE

Received By:

NAME SIGNATURE DATE

NOTES:

Bottles supplied for As speciation to be placed on HOLD and NOT analysed.

TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen

8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg

TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)

BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene

PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)

PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)

OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)

Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)

VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

364372
21/10/24
KWn

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.10
Envirolab Reference	364372
Date Sample Received	21/10/2024
Date Instructions Received	21/10/2024
Date Results Expected to be Reported	28/10/2024

Sample Condition	
Samples received in appropriate condition for analysis	Insufficient Sample
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Insufficient sample received to conduct all requested analysis - omitted herbicides. Confirmed by client via email.

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	SVOCs in Water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	Hexavalent Chromium, Cr6+ (dissolved)	Trivalent Chromium, Cr3+	PFAS in Waters Short
QC02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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

CERTIFICATE OF ANALYSIS 364372

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SCL220037.10**
Number of Samples	1 Water
Date samples received	21/10/2024
Date completed instructions received	21/10/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

Report Details

Date results requested by	28/10/2024
Date of Issue	28/10/2024

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

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

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Josh Williams, Senior R&D Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date Extracted	-	24/10/2024
Date Analysed	-	24/10/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	97
Surrogate 4-Bromofluorobenzene	%	97

SVOCs in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	25/10/2024
Date analysed	-	28/10/2024
Aniline	µg/L	<5
4-Chloroaniline	µg/L	<5
2-Nitroaniline	µg/L	<5
3-Nitroaniline	µg/L	<5
Dibenzofuran	µg/L	<5
2-Naphthylamine	µg/L	<5
1-Naphthylamine	µg/L	<5
4-Nitroaniline	µg/L	<5
Bis(2-chloroethyl) ether	µg/L	<5
Bis(2-Chloroisopropyl) ether	µg/L	<5
Bis(2-Chloroethoxy) methane	µg/L	<5
4-Chlorophenyl phenyl ether	µg/L	<5
4-Bromophenyl phenyl ether	µg/L	<5
Ethyl Methanesulfonate	µg/L	<5
Benzyl Alcohol	µg/L	<5
Isosafrole (cis+trans)	µg/L	<10
Safrole	µg/L	<5
Carbazole	µg/L	<5
Methapyrilene	µg/L	<10
p-Dimethylaminoazobenzene	µg/L	<5
Acetophenone	µg/L	<5
Nitrobenzene	µg/L	<5
Isophorone	µg/L	<5
1,3-Dinitrobenzene	µg/L	<5
2,6-Dinitrotoluene	µg/L	<5
5-Nitro-o-toluidine	µg/L	<5
Azobenzene	µg/L	<5
Phenacetin	µg/L	<5
Pentachloronitrobenzene	µg/L	<5
N-Nitrosodi-n-propylamine (NDPA)	µg/L	<5
N-Nitrosomorpholine (NMOR)	µg/L	<5
N-Nitrosopiperidine (NPIP)	µg/L	<5
N-Nitroso-n-butylamine (NDBA)	µg/L	<5
Diphenylamine	µg/L	<5

SVOCs in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
alpha-BHC	µg/L	<2
beta-BHC	µg/L	<2
gamma-BHC (Lindane)	µg/L	<2
delta-BHC	µg/L	<2
Heptachlor	µg/L	<2
Aldrin	µg/L	<2
Heptachlor Epoxide	µg/L	<2
gamma-Chlordane (trans-Chlordane)	µg/L	<2
alpha-Chlordane (cis-Chlordane)	µg/L	<2
Endosulfan I	µg/L	<2
4,4'-DDE (pp-DDE)	µg/L	<2
Dieldrin	µg/L	<2
Endrin	µg/L	<2
4,4'-DDD (pp-DDD)	µg/L	<2
Endosulfan II	µg/L	<2
Endrin Aldehyde	µg/L	<2
4,4'-DDT (pp-DDT)	µg/L	<2
Endosulfan Sulphate	µg/L	<2
Endrin Ketone	µg/L	<2
Methoxychlor	µg/L	<2
Mirex	ug/L	<2
Dichlorvos	µg/L	<2
Mevinphos	µg/L	<2
Phorate	µg/L	<2
Dimethoate	µg/L	<2
Diazinon	µg/L	<2
Disulfoton	µg/L	<2
Chlorpyrifos-methyl	µg/L	<2
Parathion-methyl	µg/L	<2
Ronnel	µg/L	<2
Fenitrothion	µg/L	<2
Malathion	µg/L	<2
Chlorpyrifos	µg/L	<2
Fenthion	µg/L	<2
Parathion	µg/L	<2
Bromophos-ethyl	µg/L	<2
Methidathion	µg/L	<2

SVOCs in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Fenamiphos	µg/L	<2
Ethion	µg/L	<2
Phosalone	µg/L	<2
Azinphos-methyl (Guthion)	µg/L	<2
Coumaphos	µg/L	<2
Naphthalene	µg/L	<2
2-Methylnaphthalene	µg/L	<2
2-Chloronaphthalene	µg/L	<2
1-Chloronaphthalene	µg/L	<2
Acenaphthylene	µg/L	<2
Acenaphthene	µg/L	<2
Fluorene	µg/L	<2
Phenanthrene	µg/L	<2
Anthracene	µg/L	<2
Fluoranthene	µg/L	<2
Pyrene	µg/L	<2
2-Acetylaminofluorene	µg/L	<2
Benzo(a)anthracene	µg/L	<2
Chrysene	µg/L	<2
Benzo(b,j,k)fluoranthene	µg/L	<4
7,12-Dimethylbenz(a)anthracene	µg/L	<2
Benzo(a)pyrene	µg/L	<2
3-Methylcholanthrene	µg/L	<2
Indeno(1,2,3-c,d)pyrene	µg/L	<2
Dibenzo(a,h)anthracene	µg/L	<2
Benzo(g,h,i)perylene	µg/L	<2
Phenol	µg/L	<2
2-Chlorophenol	µg/L	<2
2-Methylphenol (o-Cresol)	µg/L	<2
3/4-Methylphenol (m/p-Cresol)	µg/L	<4
2-Nitrophenol	µg/L	<2
2,4-Dimethylphenol	µg/L	<2
2,4-Dichlorophenol	µg/L	<2
2,6-Dichlorophenol	µg/L	<2
4-Chloro-3-methylphenol	µg/L	<5
2,4,6-Trichlorophenol	µg/L	<2
2,4,5-Trichlorophenol	µg/L	<2

SVOCs in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
2,4-Dintrophenol	µg/L	<20
4-Nitrophenol	µg/L	<20
2,3,4,6-Tetrachlorophenol	µg/L	<2
4,6-Dinitro-2-methylphenol	µg/L	<20
Pentachlorophenol	µg/L	<10
Dinoseb	µg/L	<20
Dimethyl phthalate	µg/L	<10
Diethyl phthalate	µg/L	<10
Di-n-butyl phthalate	µg/L	<50
Butyl benzyl phthalate	µg/L	<10
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	<50
Di-n-octyl phthalate	µg/L	<50
Pentachloroethane	µg/L	<2
1,3-Dichlorobenzene	µg/L	<2
1,4-Dichlorobenzene	µg/L	<2
1,2-Dichlorobenzene	µg/L	<2
Hexachloroethane	µg/L	<2
1,2,4-Trichlorobenzene	µg/L	<2
Hexachloropropene	µg/L	<2
Hexachlorobutadiene	µg/L	<2
Hexachlorocyclopentadiene	µg/L	<5
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	<4
Pentachlorobenzene	µg/L	<2
Hexachlorobenzene	µg/L	<2
Surrogate 2-Fluorophenol	%	39
Surrogate Phenol-d_6	%	23
Surrogate Nitrobenzene-d_5	%	91
Surrogate 4-Chloro-3-NBTF	%	78
Surrogate 2-Fluorobiphenyl	%	94
Surrogate 2,4,6-Tribromophenol	%	82
Surrogate *p*-Terphenyl-d_{14}	%	91

vTRH(C6-C10)/BTEXN in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	24/10/2024
Date analysed	-	24/10/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	97
Surrogate 4-Bromofluorobenzene	%	97

svTRH (C10-C40) in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	25/10/2024
Date analysed	-	26/10/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	72

PAHs in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	25/10/2024
Date analysed	-	28/10/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	91

Organochlorine Pesticides in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	25/10/2024
Date analysed	-	28/10/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	78

OP Pesticides in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	25/10/2024
Date analysed	-	28/10/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	78

PCBs in Water		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date extracted	-	25/10/2024
Date analysed	-	28/10/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	94

HM in water - dissolved		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date prepared	-	28/10/2024
Date analysed	-	28/10/2024
Arsenic-Dissolved	μg/L	<1
Cadmium-Dissolved	μg/L	<0.1
Chromium-Dissolved	μg/L	<1
Copper-Dissolved	μg/L	40
Lead-Dissolved	μg/L	<1
Mercury-Dissolved	μg/L	<0.05
Nickel-Dissolved	μg/L	1
Zinc-Dissolved	μg/L	3
Manganese-Dissolved	μg/L	86
Iron-Dissolved	μg/L	<10
Aluminium-Dissolved	μg/L	<10

Metals in Water - Dissolved		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date digested	-	28/10/2024
Date analysed	-	28/10/2024
Phosphorus - Dissolved	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date prepared	-	22/10/2024
Date analysed	-	22/10/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

PFAS in Waters Short		
Our Reference		364372-1
Your Reference	UNITS	QC02
Date Sampled		17/10/2024
Type of sample		Water
Date prepared	-	21/10/2024
Date analysed	-	21/10/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.03
Perfluorooctanoic acid PFOA	µg/L	<0.01
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	100
Surrogate $^{13}C_2$ *PFOA*	%	114
Extracted ISTD $^{18}O_2$ *PFHxS*	%	101
Extracted ISTD $^{13}C_4$ *PFOS*	%	94
Extracted ISTD $^{13}C_4$ *PFOA*	%	94
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	113
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	102
Total Positive PFHxS & PFOS	µg/L	0.04
Total Positive PFOA & PFOS	µg/L	0.03
Total Positive PFAS	µg/L	0.04

Method ID	Methodology Summary
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MSMS.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date Extracted	-			24/10/2024	[NT]	[NT]	[NT]	[NT]	24/10/2024	[NT]
Date Analysed	-			24/10/2024	[NT]	[NT]	[NT]	[NT]	24/10/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Dibromomethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/10/2024	[NT]	[NT]	[NT]	[NT]	25/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Aniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chloroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
3-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzofuran	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-chloroethyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroisopropyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroethoxy) methane	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chlorophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Bromophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethyl Methanesulfonate	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzyl Alcohol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isosafrole (cis+trans)	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Safrole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbazole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methapyrilene	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
p-Dimethylaminoazobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acetophenone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isophorone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-Dinitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dinitrotoluene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
5-Nitro-o-toluidine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenacetin	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloronitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosodi-n-propylamine (NDPA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosomorpholine (NMOR)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosopiperidine (NPIP)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitroso-n-butylamine (NDBA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diphenylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
beta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
gamma-BHC (Lindane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
delta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	80	[NT]
Aldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Heptachlor Epoxide	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	124	[NT]
gamma-Chlordane (trans-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane (cis-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDE (pp-DDE)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Dieldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	82	[NT]
4,4'-DDD (pp-DDD)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Endosulfan II	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDT (pp-DDT)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Endrin Ketone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methoxychlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Mevinphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Fenitrothion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Malathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	124	[NT]
Chlorpyrifos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Fenthion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Bromophos-ethyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	128	[NT]
Phosalone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Coumaphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Naphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
2-Methylnaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Fluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Phenanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
2-Acetylaminofluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Benzo(b,j,k)fluoranthene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
7,12-Dimethylbenz(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
3-Methylcholanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	42	[NT]
2-Chlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
2-Methylphenol (o-Cresol)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
4-Chloro-3-methylphenol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dintrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	58	[NT]
2,3,4,6-Tetrachlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,6-Dinitro-2-methylphenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	94	[NT]
Dinoseb	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Dimethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	106	[NT]
Diethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	118	[NT]
Di-n-butyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Butyl benzyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Di-n-octyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
1,3-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
1,2-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloropropene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Hexachlorobutadiene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorocyclopentadiene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorophenol	%		Org-025	73	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate Phenol-d_6	%		Org-025	45	[NT]	[NT]	[NT]	[NT]	49	[NT]
Surrogate Nitrobenzene-d_5	%		Org-025	118	[NT]	[NT]	[NT]	[NT]	111	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-025	100	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-025	111	[NT]	[NT]	[NT]	[NT]	113	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-025	101	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-025	116	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/10/2024	[NT]	[NT]	[NT]	[NT]	24/10/2024	[NT]
Date analysed	-			24/10/2024	[NT]	[NT]	[NT]	[NT]	24/10/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/10/2024	[NT]	[NT]	[NT]	[NT]	25/10/2024	[NT]
Date analysed	-			26/10/2024	[NT]	[NT]	[NT]	[NT]	26/10/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	86	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/10/2024	[NT]	[NT]	[NT]	[NT]	25/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	116	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/10/2024	[NT]	[NT]	[NT]	[NT]	25/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	116	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	80	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	124	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	82	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	100	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: OP Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/10/2024	[NT]	[NT]	[NT]	[NT]	25/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	124	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	128	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	100	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/10/2024	[NT]	[NT]	[NT]	[NT]	25/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	105	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	111	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Arsenic-Dissolved	μg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Cadmium-Dissolved	μg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Chromium-Dissolved	μg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Copper-Dissolved	μg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Lead-Dissolved	μg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Mercury-Dissolved	μg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	112	[NT]
Nickel-Dissolved	μg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Zinc-Dissolved	μg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Manganese-Dissolved	μg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	82	[NT]
Iron-Dissolved	μg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	80	[NT]
Aluminium-Dissolved	μg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/10/2024	1	22/10/2024	22/10/2024		22/10/2024	[NT]
Date analysed	-			22/10/2024	1	22/10/2024	22/10/2024		22/10/2024	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	91	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	μg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluorooctanesulfonic acid PFOS	μg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	93	[NT]
Perfluorooctanoic acid PFOA	μg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	89	[NT]
6:2 FTS	μg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
8:2 FTS	μg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	96	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	120	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	119	[NT]	[NT]	[NT]	[NT]	113	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	110	[NT]

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

ENVIROLAB GROUP Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 364936

Date Received: 25/10/24
Time Received: 1600
Received By: ST
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

epic ENVIRONMENTAL

Envirolab.

Chain of Custody Record

Project No:	SCL220037.14 - CZ5 RAP
Project/Site:	SCL220037.14
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page	2 of 2
Number of Eskies:	1

Lab:	~~ALS Sydney~~
Lab Quote No:	ES24EPIENV0004 V3
Lab Batch No:	
Date Results Required:	**Standard TAT (5 days)**
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE — water/liquid

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)
1	QC06	24/10	W										
			TOTALS										

LAB ID	Sample ID	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved	TRH/BTEXN, 8 dissolved metals, PAH, PCB, VOC/SVOC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
1	QC06		/	/	/			/				
TOTALS		0	0	0	0	0	0	0	0	0	0	0

Custody Seals Intact	Y N
Samples Received Chilled	Y N
Method of Shipment	

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE 25/10.

Received By: BULENT
NAME SIGNATURE 25/10/24 DATE 1:40pm

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.14 - CZ5 RAP
Envirolab Reference	364936
Date Sample Received	28/10/2024
Date Instructions Received	28/10/2024
Date Results Expected to be Reported	04/11/2024

Sample Condition	
Samples received in appropriate condition for analysis	Insufficient Sample
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

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

Analysis Underway, details on the following page:

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12 Ashley St Chatswood NSW 2067
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Sample ID	VOCs in water	SVOCs in Water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	Hexavalent Chromium, Cr6+ (dissolved)	Trivalent Chromium, Cr3+	PFAS in Waters Short	Triazine Herbicides in Water	Acid Herbicides in Water
QC06	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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CERTIFICATE OF ANALYSIS 364936

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SCL220037.14 - CZ5 RAP**
Number of Samples	1 Water
Date samples received	28/10/2024
Date completed instructions received	28/10/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

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

Report Details

Date results requested by	04/11/2024
Date of Issue	04/11/2024

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

Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Greta Petzold, Operation Manager
Priya Samarawickrama, Senior Chemist
Sean McAlary, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date Extracted	-	31/10/2024
Date Analysed	-	31/10/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	87

SVOCs in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Aniline	µg/L	<5
4-Chloroaniline	µg/L	<5
2-Nitroaniline	µg/L	<5
3-Nitroaniline	µg/L	<5
Dibenzofuran	µg/L	<5
2-Naphthylamine	µg/L	<5
1-Naphthylamine	µg/L	<5
4-Nitroaniline	µg/L	<5
Bis(2-chloroethyl) ether	µg/L	<5
Bis(2-Chloroisopropyl) ether	µg/L	<5
Bis(2-Chloroethoxy) methane	µg/L	<5
4-Chlorophenyl phenyl ether	µg/L	<5
4-Bromophenyl phenyl ether	µg/L	<5
Ethyl Methanesulfonate	µg/L	<5
Benzyl Alcohol	µg/L	<5
Isosafrole (cis+trans)	µg/L	<10
Safrole	µg/L	<5
Carbazole	µg/L	<5
Methapyrilene	µg/L	<10
p-Dimethylaminoazobenzene	µg/L	<5
Acetophenone	µg/L	<5
Nitrobenzene	µg/L	<5
Isophorone	µg/L	<5
1,3-Dinitrobenzene	µg/L	<5
2,6-Dinitrotoluene	µg/L	<5
5-Nitro-o-toluidine	µg/L	<5
Azobenzene	µg/L	<5
Phenacetin	µg/L	<5
Pentachloronitrobenzene	µg/L	<5
N-Nitrosodi-n-propylamine (NDPA)	µg/L	<5
N-Nitrosomorpholine (NMOR)	µg/L	<5
N-Nitrosopiperidine (NPIP)	µg/L	<5
N-Nitroso-n-butylamine (NDBA)	µg/L	<5
Diphenylamine	µg/L	<5

SVOCs in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
alpha-BHC	µg/L	<2
beta-BHC	µg/L	<2
gamma-BHC (Lindane)	µg/L	<2
delta-BHC	µg/L	<2
Heptachlor	µg/L	<2
Aldrin	µg/L	<2
Heptachlor Epoxide	µg/L	<2
gamma-Chlordane (trans-Chlordane)	µg/L	<2
alpha-Chlordane (cis-Chlordane)	µg/L	<2
Endosulfan I	µg/L	<2
4,4'-DDE (pp-DDE)	µg/L	<2
Dieldrin	µg/L	<2
Endrin	µg/L	<2
4,4'-DDD (pp-DDD)	µg/L	<2
Endosulfan II	µg/L	<2
Endrin Aldehyde	µg/L	<2
4,4'-DDT (pp-DDT)	µg/L	<2
Endosulfan Sulphate	µg/L	<2
Endrin Ketone	µg/L	<2
Methoxychlor	µg/L	<2
Mirex	ug/L	<2
Dichlorvos	µg/L	<2
Mevinphos	µg/L	<2
Phorate	µg/L	<2
Dimethoate	µg/L	<2
Diazinon	µg/L	<2
Disulfoton	µg/L	<2
Chlorpyrifos-methyl	µg/L	<2
Parathion-methyl	µg/L	<2
Ronnel	µg/L	<2
Fenitrothion	µg/L	<2
Malathion	µg/L	<2
Chlorpyrifos	µg/L	<2
Fenthion	µg/L	<2
Parathion	µg/L	<2
Bromophos-ethyl	µg/L	<2
Methidathion	µg/L	<2

SVOCs in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Fenamiphos	µg/L	<2
Ethion	µg/L	<2
Phosalone	µg/L	<2
Azinphos-methyl (Guthion)	µg/L	<2
Coumaphos	µg/L	<2
Naphthalene	µg/L	<2
2-Methylnaphthalene	µg/L	<2
2-Chloronaphthalene	µg/L	<2
1-Chloronaphthalene	µg/L	<2
Acenaphthylene	µg/L	<2
Acenaphthene	µg/L	<2
Fluorene	µg/L	<2
Phenanthrene	µg/L	<2
Anthracene	µg/L	<2
Fluoranthene	µg/L	<2
Pyrene	µg/L	<2
2-Acetylaminofluorene	µg/L	<2
Benzo(a)anthracene	µg/L	<2
Chrysene	µg/L	<2
Benzo(b,j,k)fluoranthene	µg/L	<4
7,12-Dimethylbenz(a)anthracene	µg/L	<2
Benzo(a)pyrene	µg/L	<2
3-Methylcholanthrene	µg/L	<2
Indeno(1,2,3-c,d)pyrene	µg/L	<2
Dibenzo(a,h)anthracene	µg/L	<2
Benzo(g,h,i)perylene	µg/L	<2
Phenol	µg/L	<2
2-Chlorophenol	µg/L	<2
2-Methylphenol (o-Cresol)	µg/L	<2
3/4-Methylphenol (m/p-Cresol)	µg/L	<4
2-Nitrophenol	µg/L	<2
2,4-Dimethylphenol	µg/L	<2
2,4-Dichlorophenol	µg/L	<2
2,6-Dichlorophenol	µg/L	<2
4-Chloro-3-methylphenol	µg/L	<5
2,4,6-Trichlorophenol	µg/L	<2
2,4,5-Trichlorophenol	µg/L	<2

SVOCs in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
2,4-Dintrophenol	µg/L	<20
4-Nitrophenol	µg/L	<20
2,3,4,6-Tetrachlorophenol	µg/L	<2
4,6-Dinitro-2-methylphenol	µg/L	<20
Pentachlorophenol	µg/L	<10
Dinoseb	µg/L	<20
Dimethyl phthalate	µg/L	<10
Diethyl phthalate	µg/L	<10
Di-n-butyl phthalate	µg/L	<50
Butyl benzyl phthalate	µg/L	<10
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	<50
Di-n-octyl phthalate	µg/L	<50
Pentachloroethane	µg/L	<2
1,3-Dichlorobenzene	µg/L	<2
1,4-Dichlorobenzene	µg/L	<2
1,2-Dichlorobenzene	µg/L	<2
Hexachloroethane	µg/L	<2
1,2,4-Trichlorobenzene	µg/L	<2
Hexachloropropene	µg/L	<2
Hexachlorobutadiene	µg/L	<2
Hexachlorocyclopentadiene	µg/L	<5
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	<4
Pentachlorobenzene	µg/L	<2
Hexachlorobenzene	µg/L	<2
Surrogate 2-Fluorophenol	%	23
Surrogate Phenol-d_6	%	29
Surrogate Nitrobenzene-d_5	%	89
Surrogate 4-Chloro-3-NBTF	%	74
Surrogate 2-Fluorobiphenyl	%	93
Surrogate 2,4,6-Tribromophenol	%	37
Surrogate *p*-Terphenyl-d_{14}	%	94

vTRH(C6-C10)/BTEXN in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	31/10/2024
Date analysed	-	31/10/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	87

svTRH (C10-C40) in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	69

PAHs in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	94

Organochlorine Pesticides in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	74

OP Pesticides in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	74

PCBs in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	93

HM in water - dissolved		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date prepared	-	30/10/2024
Date analysed	-	30/10/2024
Arsenic-Dissolved	µg/L	7
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	1
Zinc-Dissolved	µg/L	2
Manganese-Dissolved	µg/L	360
Iron-Dissolved	µg/L	6,600
Aluminium-Dissolved	µg/L	<10

Metals in Water - Dissolved		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date digested	-	30/10/2024
Date analysed	-	30/10/2024
Phosphorus - Dissolved	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date prepared	-	28/10/2024
Date analysed	-	28/10/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

PFAS in Waters Short		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date prepared	-	29/10/2024
Date analysed	-	29/10/2024
Perfluorobutanesulfonic acid	µg/L	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01
Perfluorooctanoic acid PFOA	µg/L	0.01
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	100
Surrogate $^{13}C_2$ *PFOA*	%	103
Extracted ISTD $^{13}C_3$ *PFBS*	%	93
Extracted ISTD $^{18}O_2$ *PFHxS*	%	98
Extracted ISTD $^{13}C_4$ *PFOS*	%	100
Extracted ISTD $^{13}C_4$ *PFOA*	%	87
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	49
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	62
Total Positive PFHxS & PFOS	µg/L	0.01
Total Positive PFOA & PFOS	µg/L	0.02
Total Positive PFAS	µg/L	0.02

Triazine Herbicides in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Atrazine	mg/L	<0.002
Ametryn	mg/L	<0.002
Cyanazine	mg/L	<0.002
Hexazinone	mg/L	<0.002
Irgarol	mg/L	<0.002
Metribuzin	mg/L	<0.002
Prometryn	mg/L	<0.002
Propazine	mg/L	<0.002
Simazine	mg/L	<0.002
Terbutryn	mg/L	<0.002
Terbuthylazine	mg/L	<0.002
Surrogate p-Terphenyl-d14	%	94

Acid Herbicides in Water		
Our Reference		364936-1
Your Reference	UNITS	QC06
Date Sampled		24/10/2024
Type of sample		Water
Date extracted	-	31/10/2024
Date analysed	-	01/11/2024
Clopyralid	µg/L	<0.5
3,5-Dichlorobenzoic acid	µg/L	<0.5
o-chlorophenoxy acetic acid	µg/L	<0.5
4-CPA	µg/L	<0.5
Dicamba	µg/L	<0.5
MCPP	µg/L	<0.5
MCPA	µg/L	<0.5
Dichlorprop	µg/L	<0.5
2,4-D	µg/L	<0.5
Bromoxynil	µg/L	<0.5
Triclopyr	µg/L	<0.5
2,4,5-TP	µg/L	<0.5
2,4,5-T	µg/L	<0.5
MCPB	µg/L	<0.5
Dinoseb	µg/L	<1
2,4-DB	µg/L	<0.5
Ioxynil	µg/L	<1
Picloram	µg/L	<1
Acifluorfen	µg/L	<2
2,4,6-T	µg/L	<0.5
2,6-D	µg/L	<0.5
Bentazon	µg/L	<1
Chloramben	µg/L	<1
Fluroxypyr	µg/L	<1
Surrogate 2.4- DCPA	%	93

Method ID	Methodology Summary
Ext-061	Analysed by Envirolab Melbourne
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MSMS.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			31/10/2024	1	31/10/2024	01/11/2024		31/10/2024	[NT]
Date Analysed	-			31/10/2024	1	31/10/2024	04/11/2024		31/10/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	108	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	93	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	95	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	89	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	85	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	84	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	1	104	108	4	104	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	98	99	1	88	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	88	1	87	84	4	98	[NT]

QUALITY CONTROL: SVOCs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Aniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chloroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
3-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzofuran	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-chloroethyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroisopropyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroethoxy) methane	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chlorophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Bromophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethyl Methanesulfonate	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzyl Alcohol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isosafrole (cis+trans)	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Safrole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbazole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methapyrilene	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
p-Dimethylaminoazobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acetophenone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isophorone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-Dinitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dinitrotoluene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
5-Nitro-o-toluidine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenacetin	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloronitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosodi-n-propylamine (NDPA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosomorpholine (NMOR)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosopiperidine (NPIP)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitroso-n-butylamine (NDBA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diphenylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
beta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
gamma-BHC (Lindane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
delta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Aldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Heptachlor Epoxide	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
gamma-Chlordane (trans-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane (cis-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDE (pp-DDE)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Dieldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Endrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
4,4'-DDD (pp-DDD)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endosulfan II	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDT (pp-DDT)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Endrin Ketone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methoxychlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Mevinphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Fenitrothion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Malathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Chlorpyrifos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Fenthion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Bromophos-ethyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phosalone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Coumaphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Naphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
2-Methylnaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Fluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Phenanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
2-Acetylaminofluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(b,j,k)fluoranthene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
7,12-Dimethylbenz(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
3-Methylcholanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	20	[NT]
2-Chlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	92	[NT]
2-Methylphenol (o-Cresol)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	70	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	90	[NT]
4-Chloro-3-methylphenol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dintrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	44	[NT]
2,3,4,6-Tetrachlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,6-Dinitro-2-methylphenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
Dinoseb	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Dimethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
Diethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	112	[NT]
Di-n-butyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Butyl benzyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Di-n-octyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
1,3-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
1,2-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloropropene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Hexachlorobutadiene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorocyclopentadiene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorophenol	%		Org-025	53	[NT]	[NT]	[NT]	[NT]	51	[NT]
Surrogate Phenol-d_6	%		Org-025	31	[NT]	[NT]	[NT]	[NT]	32	[NT]
Surrogate Nitrobenzene-d_5	%		Org-025	95	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-025	80	[NT]	[NT]	[NT]	[NT]	81	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-025	97	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-025	84	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-025	101	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			31/10/2024	1	31/10/2024	01/11/2024		31/10/2024	[NT]
Date analysed	-			31/10/2024	1	31/10/2024	04/11/2024		31/10/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	92	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	92	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	89	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	85	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	84	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	1	104	108	4	104	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	98	99	1	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	88	1	87	84	4	88	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	82	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	101	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	120	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	80	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	80	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	89	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	97	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Date analysed	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	116	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	81	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	82	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/10/2024	1	28/10/2024	28/10/2024		28/10/2024	[NT]
Date analysed	-			28/10/2024	1	28/10/2024	28/10/2024		28/10/2024	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	107	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			29/10/2024	[NT]	[NT]	[NT]	[NT]	29/10/2024	[NT]
Date analysed	-			29/10/2024	[NT]	[NT]	[NT]	[NT]	29/10/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_3$ PFBS	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: Triazine Herbicides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Atrazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	112	[NT]
Ametryn	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyanazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexazinone	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Irgarol	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Metribuzin	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Prometryn	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	100	[NT]
Propazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	112	[NT]
Simazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Terbutryn	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Terbuthylazine	mg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	101	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Acid Herbicides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Date analysed	-			01/11/2024	[NT]	[NT]	[NT]	[NT]	01/11/2024	[NT]
Clopyralid	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
3,5-Dichlorobenzoic acid	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-chlorophenoxy acetic acid	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-CPA	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dicamba	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	68	[NT]
MCPP	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	69	[NT]
MCPA	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	67	[NT]
Dichlorprop	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-D	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	68	[NT]
Bromoxynil	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Triclopyr	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-TP	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-T	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	63	[NT]
MCPB	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dinoseb	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-DB	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ioxynil	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Picloram	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acifluorfen	µg/L	2	Ext-061	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-T	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-D	µg/L	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bentazon	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloramben	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluroxypyr	µg/L	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2.4- DCPA	%		Ext-061	98	[NT]	[NT]	[NT]	[NT]	69	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

Phenoxy Acid Herbicides analysed by Envirolab Services Melbourne. Report No. MFJ0644

Herbicides

if possible. I understand you need 2x bottles but we only provide 1x!
Omit testing if not possible ~~for both~~

Envirolab

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10
Project/Site:	SCL220037.10
Sampled By:	NC
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au; nchandra@epicenvironmental.com.au
Page	2 of 2
Number of Eskies:	

Lab:	~~ALS Sydney~~
Lab Quote No:	ES24EPIENV0004 V3
Lab Batch No:	
Date Results Required:	Standard TAT (5 days)
Sample Disposal After:	

LAB ID	Sample ID	Date/Time	Matrix			60 mL Clear Plastic Bottle - Nitric Acid; Filtered	60 mL Clear Plastic Bottle - NaOH Filtered	40 mL Amber VOC Vial - Sulfuric Acid	100 mL Amber Glass Bottle - Unpreserved	500 mL Clear Plastic Bottle - Natural	20 mL HDPE (no PTFE)	60 mL Clear Plastic Bottle - Sulfuric Acid	60 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO, hardness	8 Dissolved Metals. Additional Dissolved Metals (Mn, Fe, P, Al)	TRH(C6-C40) /BTEXN/VOC/ SVOCs/PAH/ OC/ OP/ PCB/ Herbicides	PFAS (Short Suite - 12 analytes)	Nutrients: total nitrogen, total oxidised nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Major Ions: Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Bicarbonate	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)
				CONTAINER TYPE & PRESERVATIVE water/liquid																				
1	QC04	21/10	W												✓	✓	✓			✓				
			TOTALS											0	0	0	0	0	0	0	0	0	0	0

Relinquished By:		Received By:		
NAME Natalie Chandra	SIGNATURE [signature] DATE 22/10	NAME BULENT CESUR...	SIGNATURE [signature] DATE 23/10/24 12:40pm	Custody Seals Intact Y N; Samples Received Chilled Y N; Method of Shipment

NOTES:
Bottles supplied for As speciation to be placed on HOLD and NOT analysed.
TDS: Total dissolved solids; EC: electrical conductivity; ORP: oxidation reduction potential; DO: dissolved oxygen
8 dissolved metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH/TPH: total recoverable/petroleum+B33 hydrocarbons; TPH: C6-C9, C10-C14, C15-C28, C29-C36, C10-C36 (Sum of total). TRH: C6-C10, C6-C10 (F1 minus BTEX), C10-C16, C10-C16 (F2 minus Naphthalene), C16-C34, C34-C40, C10-C40 (Sum of total)
BTEXN: benzene, toluene, ethylbenzene, xylene, naphthalene
PFAS: Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per United States Environmental Protection Agency (USEPA) 527, American Society for Testing and Materials (ASTM) X7968)
PAHs: polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)
OCP/OPP: organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)
Herbicides: Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)
VOCs/SVOCs: Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 364941
Date Received: 28/10/24
Time Received: 1600
Received By: ST
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden

Sample Login Details	
Your reference	SCL220037.10
Envirolab Reference	364941
Date Sample Received	28/10/2024
Date Instructions Received	28/10/2024
Date Results Expected to be Reported	04/11/2024

Sample Condition	
Samples received in appropriate condition for analysis	Insufficient Sample
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Insufficient sample for herbicide testing.

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	SVOCs in Water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Organochlorine Pesticides in Water	OP Pesticides in Water	PCBs in Water	HM in water - dissolved	Metals in Water - Dissolved	Hexavalent Chromium, Cr6+ (dissolved)	Trivalent Chromium, Cr3+	PFAS in Waters Short
QC04	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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

CERTIFICATE OF ANALYSIS 364941

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SCL220037.10**
Number of Samples	1 Water
Date samples received	28/10/2024
Date completed instructions received	28/10/2024

Analysis Details

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

Samples were analysed as received from the client. Results relate specifically to the samples as received.

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

Report Details

Date results requested by	04/11/2024
Date of Issue	04/11/2024

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

Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Priya Samarawickrama, Senior Chemist
Sean McAlary, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date Extracted	-	31/10/2024
Date Analysed	-	31/10/2024
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Bromoform	μg/L	<1
m+p-xylene	μg/L	<2
Styrene	μg/L	<1
1,1,2,2-tetrachloroethane	μg/L	<1
o-xylene	μg/L	<1
1,2,3-trichloropropane	μg/L	<1
Isopropylbenzene	μg/L	<1
Bromobenzene	μg/L	<1
n-propyl benzene	μg/L	<1
2-chlorotoluene	μg/L	<1
4-chlorotoluene	μg/L	<1
1,3,5-trimethyl benzene	μg/L	<1
Tert-butyl benzene	μg/L	<1
1,2,4-trimethyl benzene	μg/L	<1
1,3-dichlorobenzene	μg/L	<1
Sec-butyl benzene	μg/L	<1
1,4-dichlorobenzene	μg/L	<1
4-isopropyl toluene	μg/L	<1
1,2-dichlorobenzene	μg/L	<1
n-butyl benzene	μg/L	<1
1,2-dibromo-3-chloropropane	μg/L	<1
1,2,4-trichlorobenzene	μg/L	<1
Hexachlorobutadiene	μg/L	<1
1,2,3-trichlorobenzene	μg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	87

SVOCs in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Aniline	µg/L	<5
4-Chloroaniline	µg/L	<5
2-Nitroaniline	µg/L	<5
3-Nitroaniline	µg/L	<5
Dibenzofuran	µg/L	<5
2-Naphthylamine	µg/L	<5
1-Naphthylamine	µg/L	<5
4-Nitroaniline	µg/L	<5
Bis(2-chloroethyl) ether	µg/L	<5
Bis(2-Chloroisopropyl) ether	µg/L	<5
Bis(2-Chloroethoxy) methane	µg/L	<5
4-Chlorophenyl phenyl ether	µg/L	<5
4-Bromophenyl phenyl ether	µg/L	<5
Ethyl Methanesulfonate	µg/L	<5
Benzyl Alcohol	µg/L	<5
Isosafrole (cis+trans)	µg/L	<10
Safrole	µg/L	<5
Carbazole	µg/L	<5
Methapyrilene	µg/L	<10
p-Dimethylaminoazobenzene	µg/L	<5
Acetophenone	µg/L	<5
Nitrobenzene	µg/L	<5
Isophorone	µg/L	<5
1,3-Dinitrobenzene	µg/L	<5
2,6-Dinitrotoluene	µg/L	<5
5-Nitro-o-toluidine	µg/L	<5
Azobenzene	µg/L	<5
Phenacetin	µg/L	<5
Pentachloronitrobenzene	µg/L	<5
N-Nitrosodi-n-propylamine (NDPA)	µg/L	<5
N-Nitrosomorpholine (NMOR)	µg/L	<5
N-Nitrosopiperidine (NPIP)	µg/L	<5
N-Nitroso-n-butylamine (NDBA)	µg/L	<5
Diphenylamine	µg/L	<5

SVOCs in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
alpha-BHC	µg/L	<2
beta-BHC	µg/L	<2
gamma-BHC (Lindane)	µg/L	<2
delta-BHC	µg/L	<2
Heptachlor	µg/L	<2
Aldrin	µg/L	<2
Heptachlor Epoxide	µg/L	<2
gamma-Chlordane (trans-Chlordane)	µg/L	<2
alpha-Chlordane (cis-Chlordane)	µg/L	<2
Endosulfan I	µg/L	<2
4,4'-DDE (pp-DDE)	µg/L	<2
Dieldrin	µg/L	<2
Endrin	µg/L	<2
4,4'-DDD (pp-DDD)	µg/L	<2
Endosulfan II	µg/L	<2
Endrin Aldehyde	µg/L	<2
4,4'-DDT (pp-DDT)	µg/L	<2
Endosulfan Sulphate	µg/L	<2
Endrin Ketone	µg/L	<2
Methoxychlor	µg/L	<2
Mirex	ug/L	<2
Dichlorvos	µg/L	<2
Mevinphos	µg/L	<2
Phorate	µg/L	<2
Dimethoate	µg/L	<2
Diazinon	µg/L	<2
Disulfoton	µg/L	<2
Chlorpyrifos-methyl	µg/L	<2
Parathion-methyl	µg/L	<2
Ronnel	µg/L	<2
Fenitrothion	µg/L	<2
Malathion	µg/L	<2
Chlorpyrifos	µg/L	<2
Fenthion	µg/L	<2
Parathion	µg/L	<2
Bromophos-ethyl	µg/L	<2
Methidathion	µg/L	<2

SVOCs in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Fenamiphos	µg/L	<2
Ethion	µg/L	<2
Phosalone	µg/L	<2
Azinphos-methyl (Guthion)	µg/L	<2
Coumaphos	µg/L	<2
Naphthalene	µg/L	<2
2-Methylnaphthalene	µg/L	<2
2-Chloronaphthalene	µg/L	<2
1-Chloronaphthalene	µg/L	<2
Acenaphthylene	µg/L	<2
Acenaphthene	µg/L	<2
Fluorene	µg/L	<2
Phenanthrene	µg/L	<2
Anthracene	µg/L	<2
Fluoranthene	µg/L	<2
Pyrene	µg/L	<2
2-Acetylaminofluorene	µg/L	<2
Benzo(a)anthracene	µg/L	<2
Chrysene	µg/L	<2
Benzo(b,j,k)fluoranthene	µg/L	<4
7,12-Dimethylbenz(a)anthracene	µg/L	<2
Benzo(a)pyrene	µg/L	<2
3-Methylcholanthrene	µg/L	<2
Indeno(1,2,3-c,d)pyrene	µg/L	<2
Dibenzo(a,h)anthracene	µg/L	<2
Benzo(g,h,i)perylene	µg/L	<2
Phenol	µg/L	<2
2-Chlorophenol	µg/L	<2
2-Methylphenol (o-Cresol)	µg/L	<2
3/4-Methylphenol (m/p-Cresol)	µg/L	<4
2-Nitrophenol	µg/L	<2
2,4-Dimethylphenol	µg/L	<2
2,4-Dichlorophenol	µg/L	<2
2,6-Dichlorophenol	µg/L	<2
4-Chloro-3-methylphenol	µg/L	<5
2,4,6-Trichlorophenol	µg/L	<2
2,4,5-Trichlorophenol	µg/L	<2

SVOCs in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
2,4-Dintrophenol	µg/L	<20
4-Nitrophenol	µg/L	<20
2,3,4,6-Tetrachlorophenol	µg/L	<2
4,6-Dinitro-2-methylphenol	µg/L	<20
Pentachlorophenol	µg/L	<10
Dinoseb	µg/L	<20
Dimethyl phthalate	µg/L	<10
Diethyl phthalate	µg/L	<10
Di-n-butyl phthalate	µg/L	<50
Butyl benzyl phthalate	µg/L	<10
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	<50
Di-n-octyl phthalate	µg/L	<50
Pentachloroethane	µg/L	<2
1,3-Dichlorobenzene	µg/L	<2
1,4-Dichlorobenzene	µg/L	<2
1,2-Dichlorobenzene	µg/L	<2
Hexachloroethane	µg/L	<2
1,2,4-Trichlorobenzene	µg/L	<2
Hexachloropropene	µg/L	<2
Hexachlorobutadiene	µg/L	<2
Hexachlorocyclopentadiene	µg/L	<5
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	<4
Pentachlorobenzene	µg/L	<2
Hexachlorobenzene	µg/L	<2
Surrogate 2-Fluorophenol	%	54
Surrogate Phenol-d_6	%	34
Surrogate Nitrobenzene-d_5	%	93
Surrogate 4-Chloro-3-NBTF	%	81
Surrogate 2-Fluorobiphenyl	%	93
Surrogate 2,4,6-Tribromophenol	%	82
Surrogate *p*-Terphenyl-d_{14}	%	97

vTRH(C6-C10)/BTEXN in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	31/10/2024
Date analysed	-	31/10/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	87

svTRH (C10-C40) in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	73

PAHs in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate p-Terphenyl-d14	%	97

Organochlorine Pesticides in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	81

OP Pesticides in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Dichlorvos	µg/L	<0.2
Mevinphos	µg/L	<0.2
Phorate	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Disulfoton	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Parathion-Methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenthion	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Methidathion	µg/L	<0.2
Fenamiphos	µg/L	<0.2
Ethion	µg/L	<0.2
Phosalone	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Coumaphos	µg/L	<0.2
Surrogate 4-Chloro-3-NBTF	%	81

PCBs in Water		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date extracted	-	30/10/2024
Date analysed	-	30/10/2024
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate 2-Fluorobiphenyl	%	93

HM in water - dissolved		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date prepared	-	30/10/2024
Date analysed	-	30/10/2024
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	12
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	2
Manganese-Dissolved	µg/L	<5
Iron-Dissolved	µg/L	<10
Aluminium-Dissolved	µg/L	<10

Metals in Water - Dissolved		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date digested	-	30/10/2024
Date analysed	-	30/10/2024
Phosphorus - Dissolved	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date prepared	-	28/10/2024
Date analysed	-	28/10/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

PFAS in Waters Short		
Our Reference		364941-1
Your Reference	UNITS	QC04
Date Sampled		21/10/2024
Type of sample		Water
Date prepared	-	29/10/2024
Date analysed	-	29/10/2024
Perfluorobutanesulfonic acid	µg/L	0.04
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.12
Perfluorooctanesulfonic acid PFOS	µg/L	0.09
Perfluorooctanoic acid PFOA	µg/L	0.06
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	99
Surrogate $^{13}C_2$ *PFOA*	%	102
Extracted ISTD $^{13}C_3$ *PFBS*	%	97
Extracted ISTD $^{18}O_2$ *PFHxS*	%	104
Extracted ISTD $^{13}C_4$ *PFOS*	%	103
Extracted ISTD $^{13}C_4$ *PFOA*	%	104
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	104
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	103
Total Positive PFHxS & PFOS	µg/L	0.21
Total Positive PFOA & PFOS	µg/L	0.15
Total Positive PFAS	µg/L	0.32

Method ID	Methodology Summary
Inorg-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MSMS.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Date Analysed	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Dibromomethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	85	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	88	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Aniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chloroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
3-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzofuran	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Naphthylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitroaniline	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-chloroethyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroisopropyl) ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-Chloroethoxy) methane	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Chlorophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Bromophenyl phenyl ether	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethyl Methanesulfonate	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzyl Alcohol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isosafrole (cis+trans)	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Safrole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbazole	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methapyrilene	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
p-Dimethylaminoazobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acetophenone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isophorone	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-Dinitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dinitrotoluene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
5-Nitro-o-toluidine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenacetin	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloronitrobenzene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosodi-n-propylamine (NDPA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosomorpholine (NMOR)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitrosopiperidine (NPIP)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
N-Nitroso-n-butylamine (NDBA)	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diphenylamine	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
beta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
gamma-BHC (Lindane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
delta-BHC	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Aldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Heptachlor Epoxide	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
gamma-Chlordane (trans-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane (cis-Chlordane)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDE (pp-DDE)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Dieldrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Endrin	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
4,4'-DDD (pp-DDD)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endosulfan II	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,4'-DDT (pp-DDT)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Endrin Ketone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methoxychlor	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Mevinphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-methyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Fenitrothion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Malathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Chlorpyrifos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Fenthion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Bromophos-ethyl	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phosalone	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Coumaphos	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Naphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
2-Methylnaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1-Chloronaphthalene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Fluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	112	[NT]
Phenanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	116	[NT]
2-Acetylaminofluorene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(b,j,k)fluoranthene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
7,12-Dimethylbenz(a)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	108	[NT]
3-Methylcholanthrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	20	[NT]
2-Chlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	92	[NT]
2-Methylphenol (o-Cresol)	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	70	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	90	[NT]
4-Chloro-3-methylphenol	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-Trichlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dintrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	44	[NT]
2,3,4,6-Tetrachlorophenol	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4,6-Dinitro-2-methylphenol	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
Dinoseb	µg/L	20	Org-025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: SVOCs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Dimethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
Diethyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	112	[NT]
Di-n-butyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Butyl benzyl phthalate	µg/L	10	Org-025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bis(2-ethylhexyl)phthalate (DEHP)	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Di-n-octyl phthalate	µg/L	50	Org-025	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
1,3-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
1,2-Dichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloroethane	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-Trichlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachloropropene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Hexachlorobutadiene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorocyclopentadiene	µg/L	5	Org-025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3,5 & 1,2,4,5-Tetrachlorobenzene	µg/L	4	Org-025	<4	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobenzene	µg/L	2	Org-025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorophenol	%		Org-025	53	[NT]	[NT]	[NT]	[NT]	51	[NT]
Surrogate Phenol-d_6	%		Org-025	31	[NT]	[NT]	[NT]	[NT]	32	[NT]
Surrogate Nitrobenzene-d_5	%		Org-025	95	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-025	80	[NT]	[NT]	[NT]	[NT]	81	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-025	97	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-025	84	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate *p*-Terphenyl-d_{14}	%		Org-025	101	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Date analysed	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	85	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	88	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	82	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	101	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	120	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	80	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Mevinphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	110	[NT]
Fenthion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phosalone	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	80	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Aroclor 1016	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	89	[NT]
Aroclor 1260	µg/L	2	Org-021/022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	97	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Date analysed	-			31/10/2024	[NT]	[NT]	[NT]	[NT]	31/10/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	116	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	81	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	82	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Date analysed	-			30/10/2024	[NT]	[NT]	[NT]	[NT]	30/10/2024	[NT]
Phosphorus - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Date analysed	-			28/10/2024	[NT]	[NT]	[NT]	[NT]	28/10/2024	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	107	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			29/10/2024	[NT]	[NT]	[NT]	[NT]	29/10/2024	[NT]
Date analysed	-			29/10/2024	[NT]	[NT]	[NT]	[NT]	29/10/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	96	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_3$ PFBS	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	102	[NT]

Result Definitions

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

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

APPENDIX F – CALIBRATION CERTIFICATES

August 2024 GME

Multi Parameter Water Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument YSI Quatro Pro Plus
Serial No. 11C100763

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00 (pH)		pH 7.00		419529	7.00
2. pH 4.00 (pH)		pH 4.00		414104	3.97
3. ORP (mV)		236.92		420151/420152	237.1
4. EC (mS)		2760		424499	2765
5. D.O		0.0%		407802	0.3%
6. Temp (°C)		21.4		MultiTherm	19.7

Calibrated by: Christopher Nicdao

Calibration date: 28/08/2024

Next calibration due: 27/09/2024

October 2024 GME

9/10/2024

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 20M100100

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00 (pH)		pH 7.00		419529	7.01
2. pH 4.00 (pH)		pH 4.00		422643	3.99
3. ORP (mV)		237.52		420151/426087	238.2
4. EC (uS/cm)		2760		424499	2760
5. D.O		0.0%		412773	0.2%
6. Temp (°C)		18.4		MultiTherm	18.2

Calibrated by: Chris Nicdao

Calibration date: 9/10/2024

Next calibration due: 8/11/2024

17/10/2024

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18G103119

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00 (pH)		pH 7.00		419529	6.97
2. pH 4.00 (pH)		pH 4.00		422643	4.17
3. ORP (mV)		242.50		420151/426087	241.2
4. EC (mS)		2760		424499	2754
5. D.O		0.0%		412773	0.1%
6. Temp (°C)		19.7		MultiTherm	20.4

Calibrated by: Alex Buist

Calibration date: 17/10/2024

Next calibration due: 16/11/2024

APPENDIX G – MANN KENDALL TREND ANALYSIS

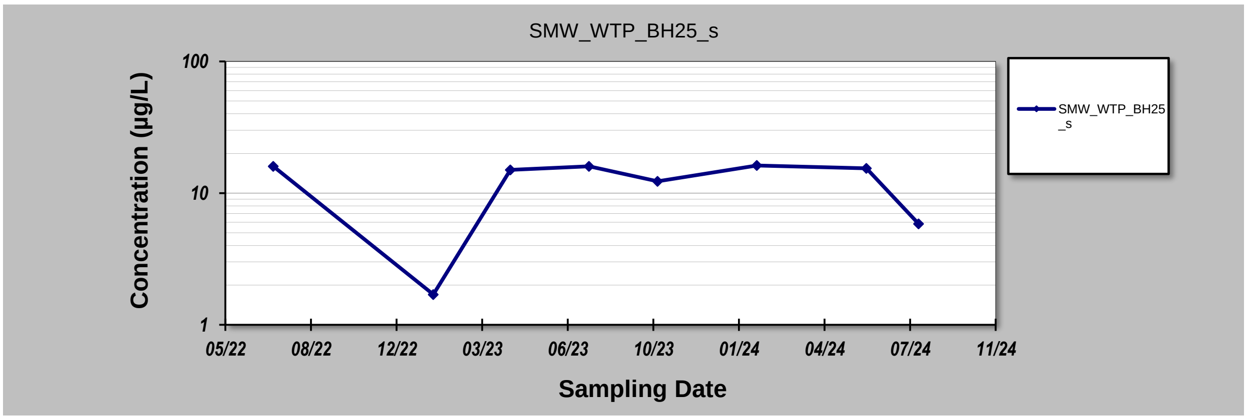
August 2024 GME Mann Kendall analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Ammonia
Conducted By:	NC	Concentration Units:	µg/L

Sampling Point ID: SMW_WTP_BH2

Sampling Event	Sampling Date	AMMONIA CONCENTRATION (µg/L)						
1	14/7/2022	16						
2	17/1/2023	1.7						
3	17/4/2023	15						
4	18/7/2023	16						
5	6/10/2023	12.3						
6	30/1/2024	16.2						
7	6/6/2024	15.4						
8	6/8/2024	5.84						
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.45						
	Mann-Kendall Statistic (S):	-1						
	Confidence Factor:	50.0%						
	Concentration Trend:	Stable						



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

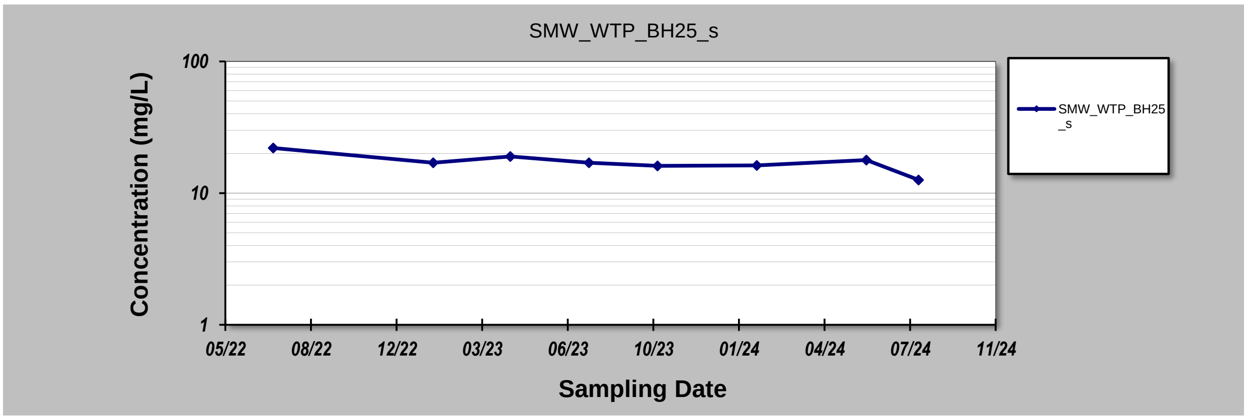
Mann-Kendall Analysis – SMW WTP GME R8 (August 2024)

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	10-Jul-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Total Nitrogen
Conducted By:	NC	Concentration Units:	mg/L

Sampling Point ID: SMW_WTP_BH2

Sampling Event	Sampling Date	TOTAL NITROGEN CONCENTRATION (mg/L)						
1	14/07/2022	22						
2	17/01/2023	17						
3	17/04/2023	19						
4	18/07/2023	17						
5	6/10/2023	16.1						
6	30/01/2024	16.2						
7	6/06/2024	17.8						
8	6/08/2024	12.6						
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.16						
Mann-Kendall Statistic (S):		-15						
Confidence Factor:		95.8%						
Concentration Trend:		Decreasing						



Notes:

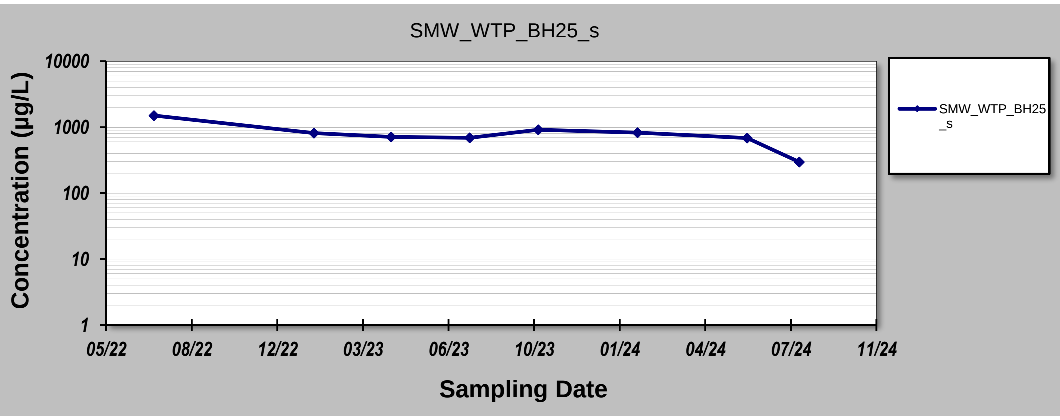
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Chlorobenzene
Conducted By:	NC	Concentration Units:	µg/L

Sampling Point ID: SMW_WTP_BH2

Sampling Event	Sampling Date	CHLOROBENZENE CONCENTRATION (µg/L)						
1	14/07/2022	1500						
2	17/01/2023	810						
3	17/04/2023	710						
4	18/07/2023	690						
5	6/10/2023	911						
6	30/01/2024	826						
7	6/06/2024	686						
8	6/08/2024	296						
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.42						
Mann-Kendall Statistic (S):		-16						
Confidence Factor:		96.9%						
Concentration Trend:		Decreasing						



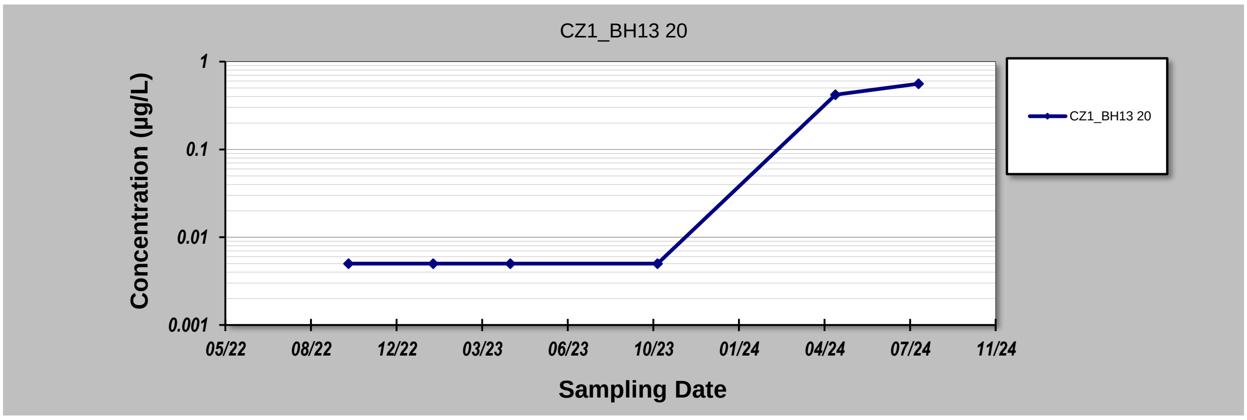
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	PFOS
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Point ID:		CZ1_BH13						
Sampling Event	**Sampling Date**	**PFOS CONCENTRATION (µg/L)**						
1	27/7/2022	0.002						
2	10/10/2022	0.005						
3	17/1/2023	0.005						
4	17/4/2023	0.005						
5	18/7/2023	0.08						
6	6/10/2023	0.005						
7	22/1/2024	0.41						
8	1/5/2024	0.42						
9	6/8/2024	0.56						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.53						
Mann-Kendall Statistic (S):		8						
Confidence Factor:		89.8%						
Concentration Trend:		No Trend						



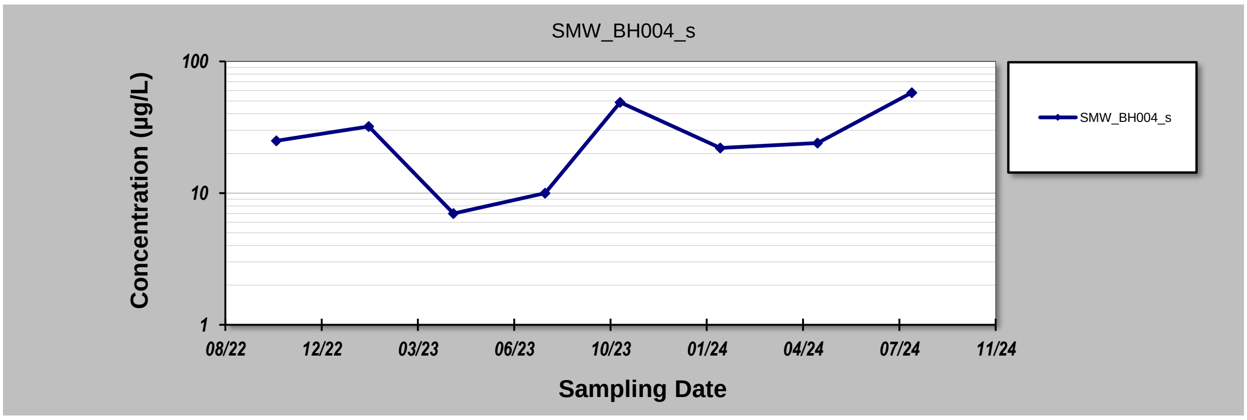
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Copper
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Event	Sampling Date	COPPER CONCENTRATION (µg/L)						
Sampling Point ID:		SMW_BH004_s						
1	19/10/2022	25						
2	23/1/2023	32						
3	21/4/2023	7						
4	25/7/2023	10						
5	11/10/2023	49						
6	23/1/2024	22						
7	3/5/2024	24						
8	9/8/2024	58						
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.62						
Mann-Kendall Statistic (S):		8						
Confidence Factor:		80.1%						
Concentration Trend:		No Trend						

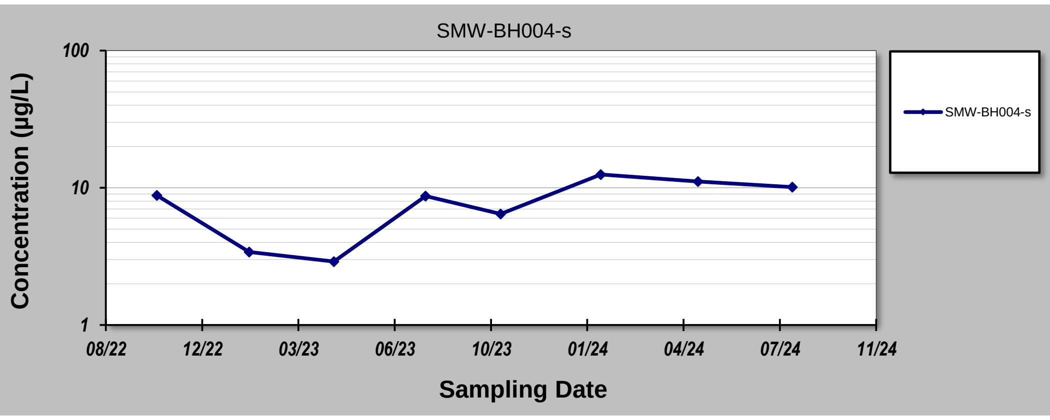


Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Nitrate as N
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Point ID:		SMW-BH004-s						
Sampling Event	Sampling Date	NITRATE AS N CONCENTRATION (µg/L)						
1	19/10/2022	8.8						
2	23/1/2023	3.4						
3	21/4/2023	2.9						
4	25/7/2023	8.71						
5	11/10/2023	6.44						
6	23/1/2024	12.5						
7	3/5/2024	11.1						
8	9/8/2024	10.1						
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.44						
Mann-Kendall Statistic (S):		10						
Confidence Factor:		86.2%						
Concentration Trend:		No Trend						



Notes:

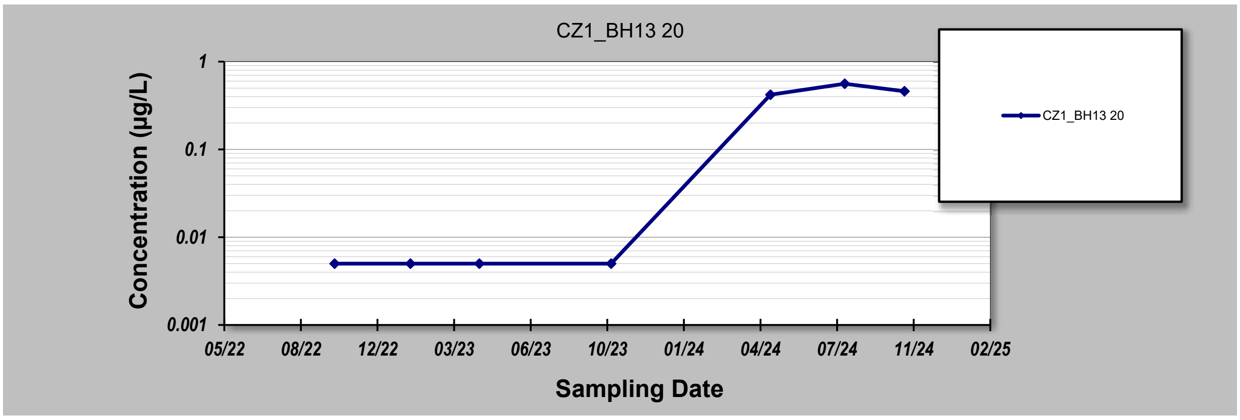
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

October 2024 GME Mann Kendall analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	PFOS
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Point ID:	CZ1_BH13						
Sampling Event	**Sampling Date**	**PFOS CONCENTRATION (µg/L)**					
1	27/7/2022	0.002					
2	10/10/2022	0.005					
3	17/1/2023	0.005					
4	17/4/2023	0.005					
5	18/7/2023	0.08					
6	6/10/2023	0.005					
7	22/1/2024	0.41					
8	1/5/2024	0.42					
9	6/8/2024	0.56					
10	23/10/2024	0.46					
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		1.23					
Mann-Kendall Statistic (S):		9					
Confidence Factor:		88.1%					
Concentration Trend:		No Trend					



Notes:

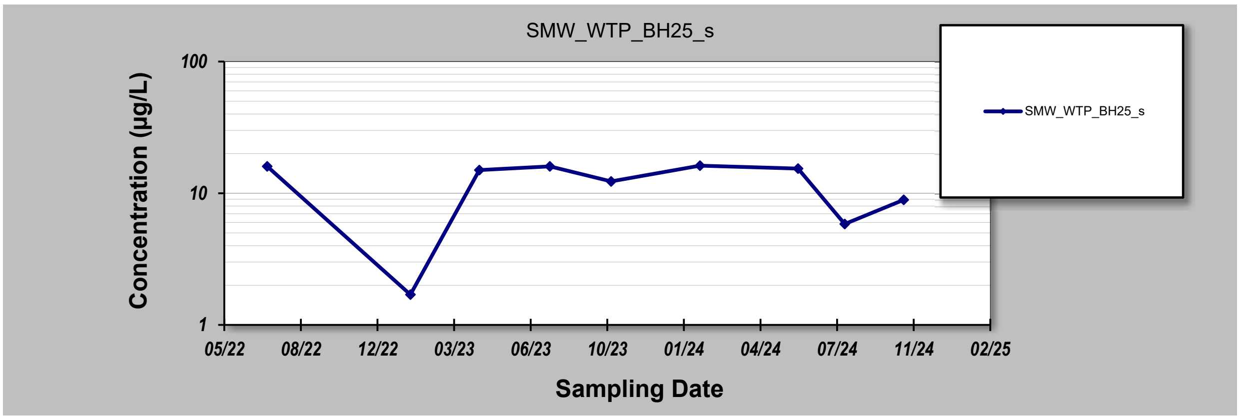
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Ammonia
Conducted By:	NC	Concentration Units:	µg/L

Sampling Point ID: SMW_WTP_BH2

Sampling Event	Sampling Date	AMMONIA CONCENTRATION (µg/L)						
1	14/7/2022	16						
2	17/1/2023	1.7						
3	17/4/2023	15						
4	18/7/2023	16						
5	6/10/2023	12.3						
6	30/1/2024	16.2						
7	6/6/2024	15.4						
8	6/8/2024	5.84						
9	22/10/2024	8.91						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.44						
Mann-Kendall Statistic (S):		-5						
Confidence Factor:		65.7%						
Concentration Trend:		Stable						



Notes:

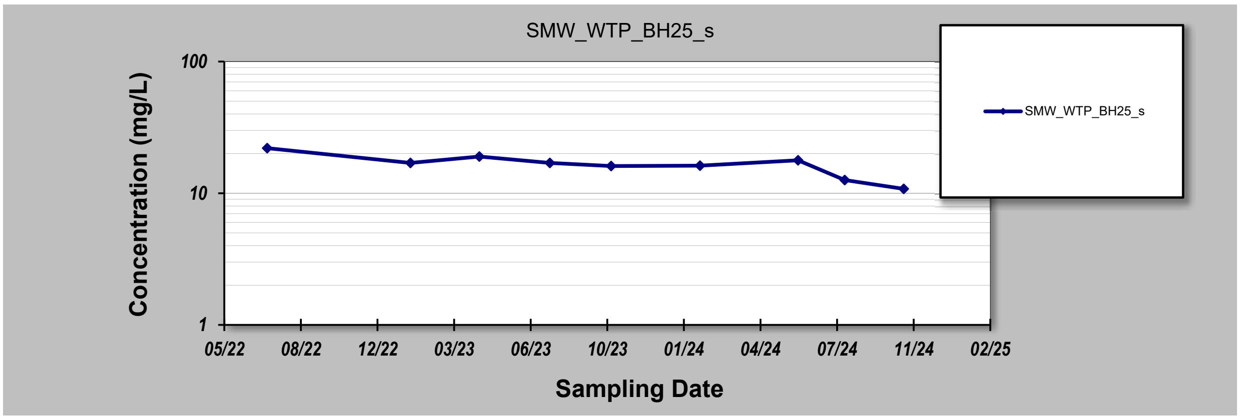
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	10-Jul-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Total Nitrogen
Conducted By:	NC	Concentration Units:	mg/L

Sampling Point ID: SMW_WTP_BH2

Sampling Event	Sampling Date	TOTAL NITROGEN CONCENTRATION (mg/L)						
1	14/07/2022	22						
2	17/01/2023	17						
3	17/04/2023	19						
4	18/07/2023	17						
5	6/10/2023	16.1						
6	30/01/2024	16.2						
7	6/06/2024	17.8						
8	6/08/2024	12.6						
9	22/10/2024	10.8						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.20						
Mann-Kendall Statistic (S):		-23						
Confidence Factor:		99.1%						
Concentration Trend:		Decreasing						



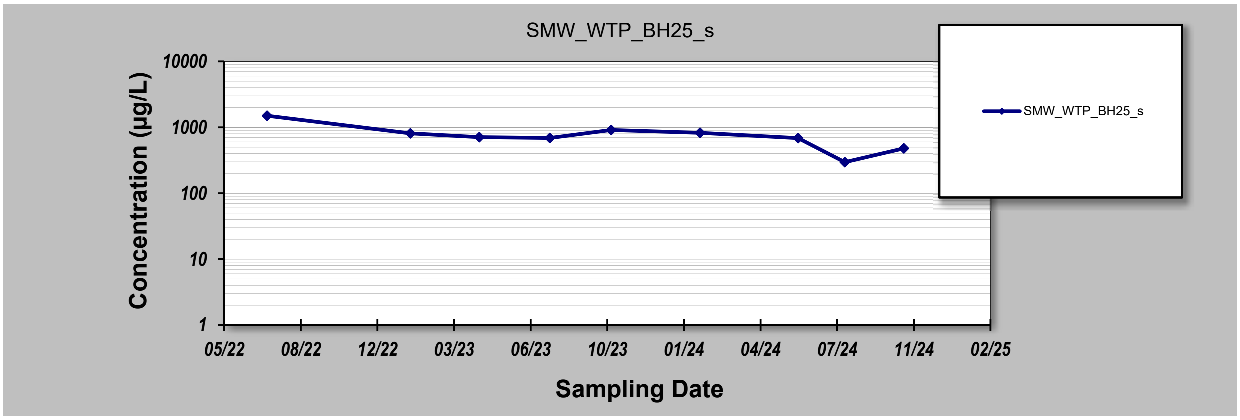
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Chlorobenzene
Conducted By:	NC	Concentration Units:	µg/L

	Sampling Point ID:	SMW_WTP_BH2						
Sampling Event	**Sampling Date**	**CHLOROBENZENE CONCENTRATION (µg/L)**						
1	14/07/2022	1500						
2	17/01/2023	810						
3	17/04/2023	710						
4	18/07/2023	690						
5	6/10/2023	911						
6	30/01/2024	826						
7	6/06/2024	686						
8	6/08/2024	296						
9	22/10/2024	479						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.43						
	Mann-Kendall Statistic (S):	-22						
	Confidence Factor:	98.8%						
	Concentration Trend:	Decreasing						



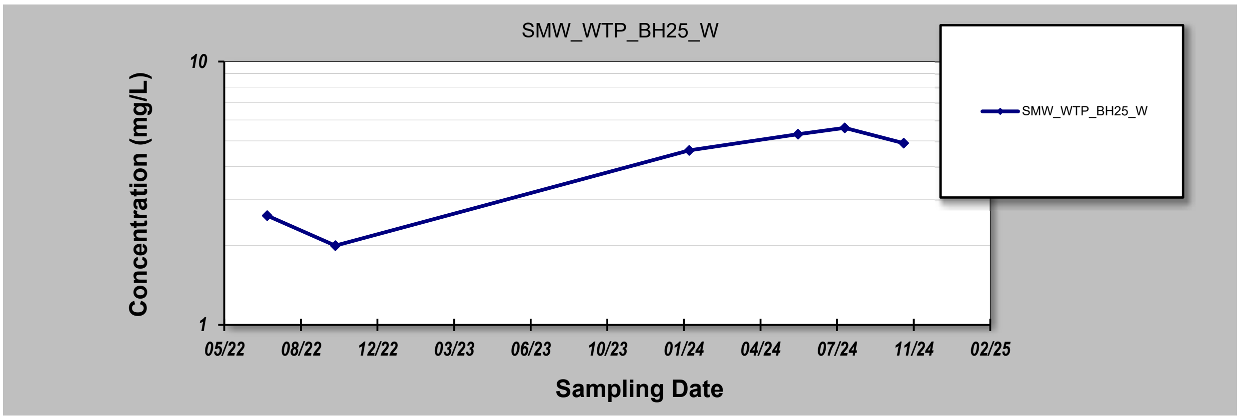
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 10-Jul-24
Facility Name: WTP GME
Conducted By: NC
Job ID: SCL220037.10
Constituent: Total Nitrogen
Concentration Units: mg/L

	Sampling Point ID:	SMW_WTP_BH2						
Sampling Event	**Sampling Date**	**TOTAL NITROGEN CONCENTRATION (mg/L)**						
1	14/07/2022	2.6						
2	11/10/2022	2						
3	16/01/2024	4.6						
4	6/06/2024	5.3						
5	6/08/2024	5.6						
6	22/10/2024	4.9						
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.36						
	Mann-Kendall Statistic (S):	9						
	Confidence Factor:	93.2%						
	Concentration Trend:	Prob. Increasing						



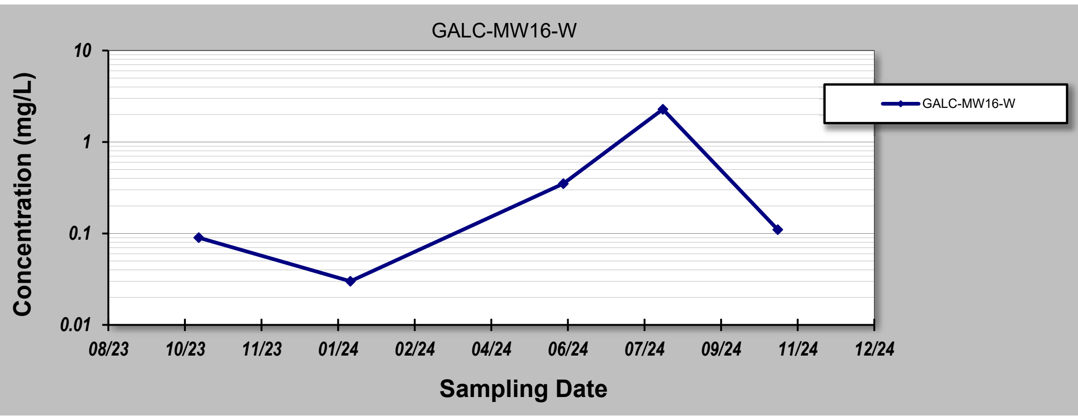
Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Sep-24
Facility Name: WTP GME
Conducted By: Jonathan Pickerden
Job ID: SCL220037.10
Constituent: Total Phosphorus as P (Organic Phosphate as P
Concentration Units: mg/L

Sampling Point ID: GALC-MW16-W

Sampling Event	Sampling Date	TOTAL PHOSPHORUS AS P (ORGANIC PHOSPHATE AS P) CONCENTRATION (mg/L)						
1	10/10/2023	0.09						
2	17/01/2024	0.03						
3	4/06/2024	0.35						
4	8/08/2024	2.28						
5	22/10/2024	0.11						
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.68						
Mann-Kendall Statistic (S):		4						
Confidence Factor:		75.8%						
Concentration Trend:		No Trend						

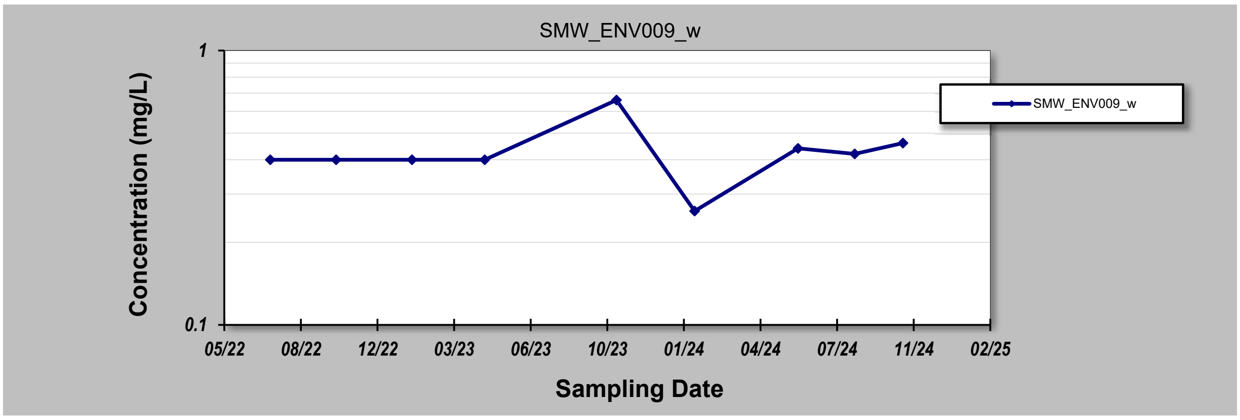


Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	16-Sep-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Total Phosphorus as P (Organic Phosphate as P
Conducted By:	Jonathan Pickerden	Concentration Units:	mg/L

Sampling Point ID:		SMW_ENV009_w						
Sampling Event	Sampling Date	TOTAL PHOSPHORUS AS P (ORGANIC PHOSPHATE AS P) CONCENTRATION (mg/L)						
1	18/07/2022	0.40						
2	12/10/2022	0.40						
3	19/01/2023	0.40						
4	24/04/2023	0.40						
5	13/10/2023	0.66						
6	23/01/2024	0.26						
7	6/06/2024	0.44						
8	19/08/2024	0.42						
9	21/10/2024	0.46						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.24						
Mann-Kendall Statistic (S):		12						
Confidence Factor:		87.0%						
Concentration Trend:		No Trend						



Notes:

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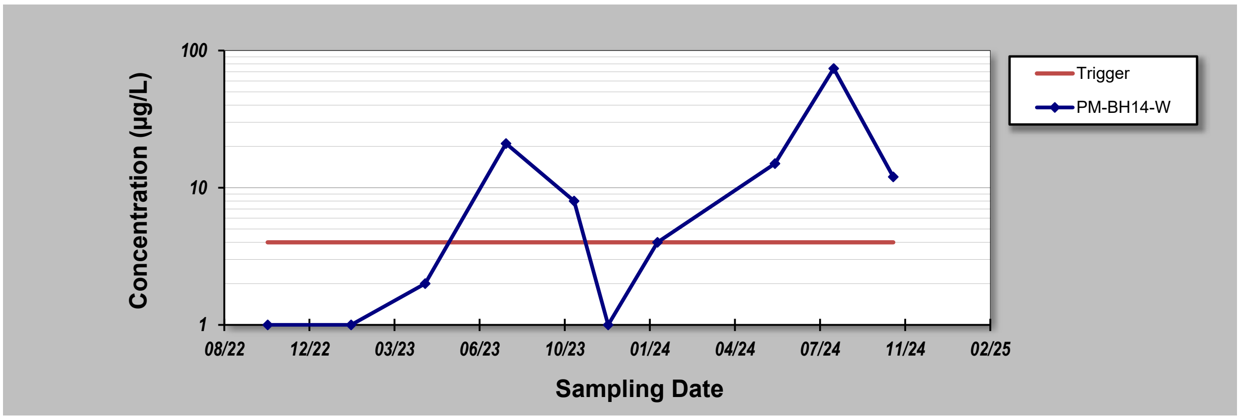
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Copper
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Event	Sampling Date	COPPER CONCENTRATION (µg/L)						
Sampling Point ID:		PM-BH14-W	Trigger					
1	17/10/2022	1	4					
2	23/1/2023	1	4					
3	20/4/2023	2	4					
4	24/7/2023	21	4					
5	12/10/2023	8	4					
6	21/11/2023	1	4					
7	18/1/2024	4	4					
8	4/6/2024	15	4					
9	12/8/2024	74	4					
10	21-Oct-24	12	4					
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.60	0.00					
Mann-Kendall Statistic (S):		22	0					
Confidence Factor:		97.1%	45.6%					
Concentration Trend:		Increasing	Stable					

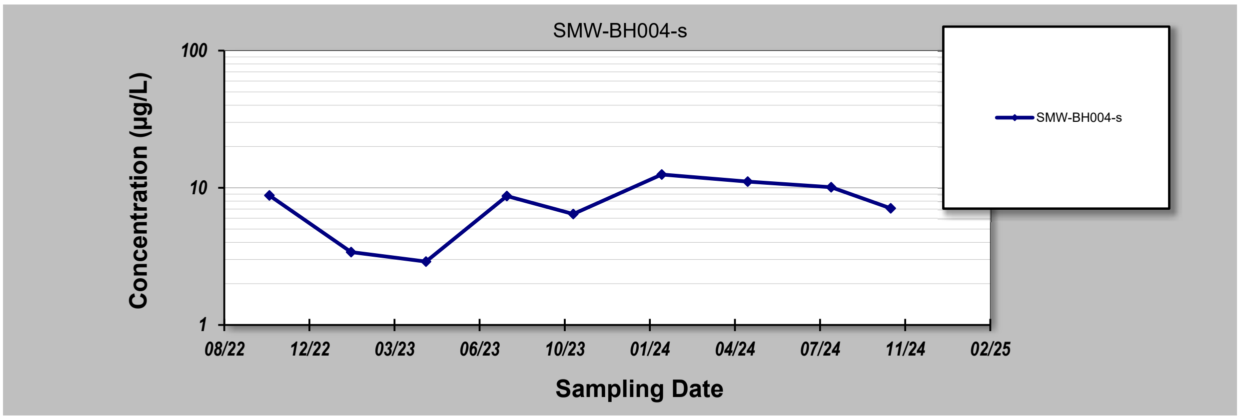


Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Nitrate as N
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Point ID:		SMW-BH004-s						
Sampling Event	Sampling Date	NITRATE AS N CONCENTRATION (µg/L)						
1	19/10/2022	8.8						
2	23/1/2023	3.4						
3	21/4/2023	2.9						
4	25/7/2023	8.71						
5	11/10/2023	6.44						
6	23/1/2024	12.5						
7	3/5/2024	11.1						
8	9/8/2024	10.1						
9	18-Oct-24	7.09						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.41						
Mann-Kendall Statistic (S):		8						
Confidence Factor:		76.2%						
Concentration Trend:		No Trend						



Notes:

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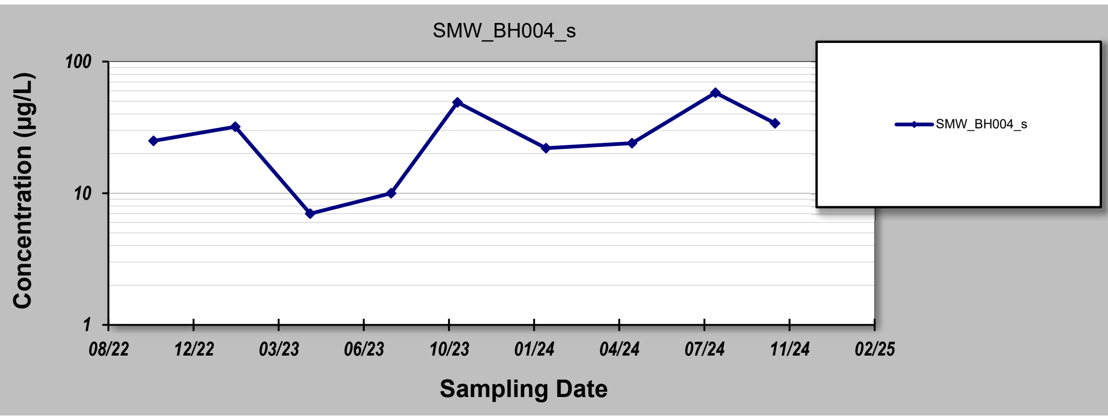
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Aug-24	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Copper
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Point ID: SMW_BH004_s

Sampling Event	Sampling Date	COPPER CONCENTRATION (µg/L)						
		SMW_BH004_s						
1	19/10/2022	25						
2	23/1/2023	32						
3	21/4/2023	7						
4	25/7/2023	10						
5	11/10/2023	49						
6	23/1/2024	22						
7	3/5/2024	24						
8	9/8/2024	58						
9	18-Oct-24	34						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.57						
Mann-Kendall Statistic (S):		12						
Confidence Factor:		87.0%						
Concentration Trend:		No Trend						



Notes:
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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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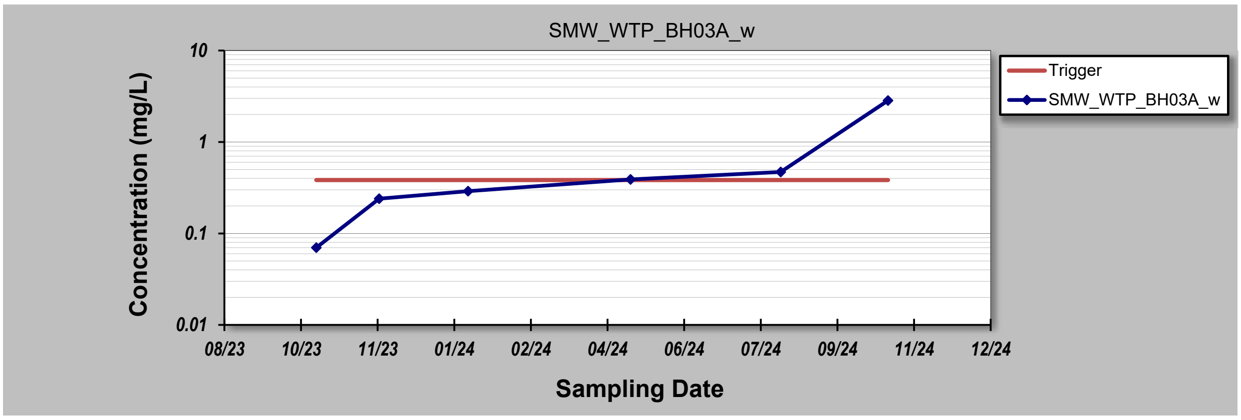
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:		Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Total Phosphorus as P (Organic Phosphate as P
Conducted By:	Natalie Chandra	Concentration Units:	mg/L

Sampling Point ID:		SMW_WTP_BH0	Trigger						
Sampling Event	Sampling Date	TOTAL PHOSPHORUS AS P (ORGANIC PHOSPHATE AS P) CONCENTRATION (mg/L)							
1	11/10/2023	0.07	0.384						
2	21/11/2023	0.24	0.384						
3	18/1/2024	0.29	0.384						
4	3/5/2024	0.39	0.384						
5	9/8/2024	0.47	0.384						
6	18/10/2024	2.84	0.384						
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
Coefficient of Variation:		1.46	0.00						
Mann-Kendall Statistic (S):		15	0						
Confidence Factor:		99.9%	39.3%						
Concentration Trend:		Increasing	Stable						



Notes:

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APPENDIX H – REPORTABLE CHANGES RISK ASSESSMENT

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A Montrose Environmental Company

technical memorandum

Date:	15 January 2025
To:	Tahli Moore, Gamuda Laing O'Rourke Consortium
From:	Jonathan Pickerden, Epic Environmental
Client name:	Gamuda Laing O'Rourke
Project name:	Sydney Metro West – Western Tunnelling Package - Groundwater Monitoring Program – Risk Assessment (Post-Round 9 October 2024 GME)
Project number:	SCL220037.10
Subject:	Groundwater Monitoring Plan: Reportable change in groundwater quality - Risk assessment

1 INTRODUCTION

Epic Environmental Ltd (Epic) has been engaged by Gamuda Laing O'Rourke Consortium (GLC) to undertake the project-wide groundwater monitoring in accordance with the project's Groundwater Monitoring Program (GMP), document number: SMWSTWTP-GLO-1NL-EN-PRG-000002, across the Sydney Metro West – Western Tunnelling Package ('the Project', WTP). Groundwater monitoring for the GMP commenced in July 2022 (by Epic).

A risk assessment was warranted following the identification of significant changes in groundwater quality during the October 2024 (Round 9, R9) monitoring round.

This technical memorandum (tech memo) details the findings of the risk assessment and any recommendations.

2 BACKGROUND

2.1 Performance Criteria

A reportable change in groundwater quality is defined in the GMP (currently RevD) as the following criteria:

1. A parameter exceeding default guideline values over a sustained period (i.e., for at least 3 consecutive monitoring rounds), which has been recorded during baseline monitoring as non-detect or below trigger value criteria
2. A parameter increasing in concentration over a sustained period (i.e., for at least 3 consecutive monitoring rounds) to more than twice the zone and aquifer specific baseline trigger value, where the baseline trigger value exceeds the National Environment Protection Measures (NEPM) Groundwater Investigation Levels (GIL) trigger value and/or Australian and New Zealand Environment. Conservation Council (ANZECC) 2000/Australian and New Zealand Guidelines (ANZG) 2018 trigger value

If a reportable change in groundwater quality is identified, then the reportable change will need to be assessed to determine if it is statistically significant trend (i.e., via Mann Kendall trend analysis (MKA)). A desktop investigation is warranted if the groundwater quality reportable change is considered significant.

The desktop assessment is to be completed in the form of a risk assessment. The findings of the risk assessment could warrant additional monitoring or management responses. The process is shown schematically in **Figure 1**.

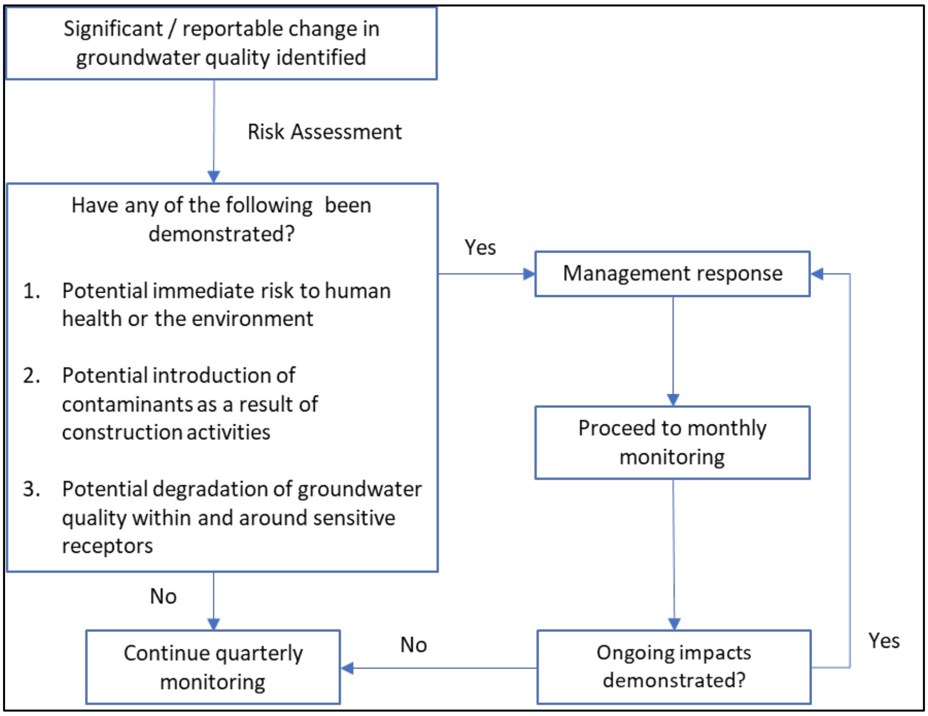


Figure 1. Trigger value exceedance flowchart

2.2 Risk Assessment Objectives

Statistically significant exceedances were identified for the contaminants comprising copper and total phosphorous as part of data review completed for R9 of the 2024 GME for the Project's GMP.

Exceedance of the trigger value for copper was identified at one groundwater monitoring well (GWMW) located in the Parramatta Monitoring Zone (PM-BH14). Exceedance of the trigger value for total phosphorous was identified at one GWMW located in the Westmead Monitoring Zone (SMW_WTP_BH03A_w).

Trigger value exceedances relate to ANZG freshwater default guideline values adopted for the Project.

A summary of the water quality testing results for GME monitoring rounds 7 – 9 (R7 – R9) for copper and phosphorous PM-BH14 and SMW_WTP_BH03A_w respectively are provided in **Table 1** along with the relevant trigger value. Review of the data has identified a statistically significant reportable changes based on MKA, which shows increasing concentration over a sustained period. This MKA analysis is shown in **Appendix A**.

Table 1. Reportable changes in groundwater quality (R9 GME)

Monitoring zone	GWMW ID	Analyte	Trigger value	Concentration (µg/L)		
				R7 GME	R8 GME	R9 GME
Parramatta	PM_BH14	Copper (filtered)	2	15	75	19
Westmead	SMW_WTP_BH03A_w	Total Phosphorus as P	192	390	470	2,840

The objectives of this desktop risk assessment are to:

- Classify potential risks to default guideline value (DGV) based receptors
- Identify potential causes of exceedances and determine whether contaminants have or may have been introduced as a direct result of construction activities
- Determine whether management actions are required for these significant changes or whether continued quarterly monitoring constitutes the appropriate response

3 SCOPE OF WORK

The following scope of work has been completed:

- Contact with respective site managers to confirm construction activities/any potential environmental issues encountered over the past six months
- Desktop risk assessment for PM_BH14 and SMW_WTP_BH03A_w to determine whether any of the following has been demonstrated:
  - Potential introduction of contaminants as a direct result of construction activities
  - Potential degradation of groundwater quality within and around sensitive receptors
  - Potential immediate risk to the environment from changes in groundwater quality
  - Potential immediate risk to human health from the changes in groundwater quality

4 DEFINITION OF RISK

This risk assessment has been evaluated in general accordance with the risk management Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2018. Risk is defined as the product of *likelihood of a hazard occurring* and *consequence of a hazard occurring*. Consequence is defined as the outcome of a hazard. Likelihood is defined as the chance of a hazard happening.

ISO 31000:2018 details the following steps for assessing risk:

1. Risk identification
2. Risk analysis
3. Risk evaluation
4. Risk treatment

The risk matrix, likelihood definitions, and consequence definitions are provided in **Appendix B**.

5 RISK IDENTIFICATION

Following the GMP, two significant reportable changes in groundwater quality were identified. The risk of these reportable changes are as follows:

- Potential degradation of groundwater quality within and around sensitive receptors
- Potential immediate risk to the environment from changes in groundwater quality
- Potential immediate risk to human health from the changes in groundwater quality

The potential for contaminants to have been introduced as a direct result of construction activities is addressed for each contaminant/borehole location.

Potential causes and risks associated with the reportable changes for copper at PM_BH14 are discussed in **Section 6**. Potential causes and risks associated with the reportable changes for total phosphorous at SMW_WTP_BH03A_w are addressed in **Section 7**. A summary of the report structure for the risk analysis is provided in **Table 2**.

Table 2. Risk Analysis Content and Structure

Section	Title	Subsection	Title
6.0	Risk Analysis and Evaluation: PM_BH14 – Copper	6.1	Site and Groundwater Monitoring Bore Context
		6.2	Potential Introduction of Contaminants from Construction
		6.3	Potential Degradation of Groundwater Quality
		6.4	Potential Risks to the Environment
		6.5	Potential Risks to Human Health
7.0	Risk Analysis and Evaluation: SMW_WTP_BH03A_w – Total Phosphorous	7.1	Site and Groundwater Monitoring Bore Context
		7.2	Potential Introduction of Contaminants from Construction

Section	Title	Subsection	Title
		7.3	Potential Degradation of Groundwater Quality
		7.4	Potential Risks to the Environment
		7.5	Potential Risks to Human Health
8.0	Summary	8	-
9.0	Conclusions	9	-

6 RISK ANALYSIS AND EVALUATION: PM_BH14 - COPPER

A risk assessment for copper in PM_BH14 is provided in the following subsections. Background information for the site setting has been obtained from the Parramatta Station detailed site investigation (DSI) completed by Epic (2023), and the hydrogeological interpretive report (HIR) for the western tunnel package, completed by Gamuda (GLC, 2022).

6.1 Site and Groundwater Monitoring Bore Context

The closest water body to the Parramatta site is the Parramatta River, located 310 m north of site. The Parramatta River flows in an easterly direction towards the Sydney Basin (Epic, 2023). A map of the Parramatta site is provided in **Figure 3**.

The ground model for the site comprises fill deposits underlain by alluvium, which typically comprises silty/clayey SAND and silty/sandy CLAY. The alluvium is underlain by the Ashfield Shale and Mittagong Formation which overlie Hawkesbury Sandstone. Groundwater monitoring data suggests that groundwater in the alluvium is distinct to groundwater within the Hawkesbury Sandstone with the Mittagong Formation acting as an aquitard.

Groundwater at Parramatta is estimated to flow northeasterly towards the Parramatta River (refer **Figure 3**). The shallow aquifer is expected to be hydraulically connected with the river.

In unsealed areas of the site, infiltration is expected into the soil profile followed by percolation to the water table. Any overland flow would likely be towards the north, discharging to stormwater drains on George Street.

Deep station box excavation at the Parramatta construction site has proceeded, meaning groundwater ingress is occurring and dewatering is taking place as needed. This is typically groundwater from the bedrock aquifers.

PM_BH14 is screened at 3.5-6 metres below ground level (mbgl), targeting the shallow alluvial aquifer (clayey sand). It is located along the southern boundary of site (in an upgradient location of site activities; refer **Figure 3**). The GWMW has been sampled by Epic since the R1 GME (October 2022) for the GMP. Hydrogeological parameters for in the alluvium in Parramatta and chemical parameters for copper are provided in **Table 3**.

Table 3. Hydrogeological Parameters – alluvium in Parramatta

Parameter	Value	Unit	Justification
Hydraulic conductivity (*k*)	0.1	m/day	Section 2.4.2 from Project HIR
Hydraulic gradient (*i*)	0.00481	-	Hydraulic head difference between PM_BH14 and SMW_BH004_s per SWLs measured during the October 2024 GME
Effective porosity (n_e)	0.57	-	Effective porosity of clay (Morris & Johnson, 1967)
Thickness of saturated aquifer (*b*)	12.8	m	Thickest alluvial layer from Parramatta borelogs
Width of aquifer perpendicular to flow (*w*)	220.0	m	Parramatta site width

Parameter	Value	Unit	Justification
Distance to receptor (*x*)	310.0	m	Distance from Parramatta site boundary to Parramatta River
Bulk density of aquifer materials (ρ)	2.65	g/cm^3	Bulk density value for quartz
Soil-water partition co-efficient for copper (*Kd*)	35.0	L/kg	Baes (1984)

Box and whisker plots for copper results from the Parramatta GWMWs prior to and post construction works are shown on **Figure 2**. Construction for the Parramatta Station began around July 2023. The plots include all available copper results from Parramatta GWMWs screened in the alluvial (shallow) aquifer during the baseline period (July 2022 (R0) to July 2023 (R4)) and following the start of construction. Individual plots have been made for PM_BH14, as well as similarly screened GWMWs PM_BH15 (onsite, along the northern boundary of site) located downgradient, and SMW_BH004_s (offsite) located downgradient.

MKA plots have been completed for these reported copper concentrations. The analysis indicates that copper in the groundwater of PM_BH14 is a statistically increasing trend. MKA tables are provided in **Appendix A.**

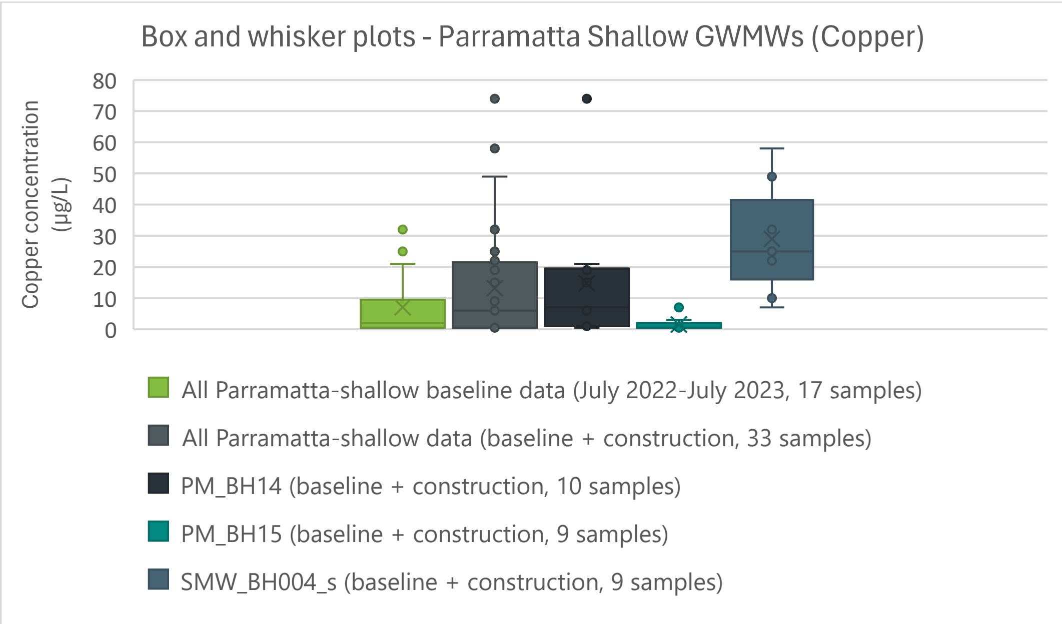


Figure 2. Box and whisker plots showing copper results at Parramatta Groundwater Monitoring Wells

Figure 3. Map of Parramatta Station – Groundwater Monitoring Wells

6.2 Potential Introduction of Contaminants from Construction

GLC site representatives were queried in December 2024 regarding Parramatta site activities for the past six months, with details below:

- Construction activities
  - Station box excavation (closest activity to the GWMW)
  - Nozzle construction works
  - Steel installations
  - Horwood bridge install
  - Archaeology clearance
- Spills or events
  - A few minor spills of hydrocarbon and hydraulic fluid. These were contained and cleaned up at the location of the spill. Contents did not enter any nearby waterways
- Onsite water management
  - Dewatering of groundwater ingress into the station box as needed, and transferred to the fish tank container
  - Surface water runoff is contained onsite and then transferred to the fish tank container
  - Contents in the fish tank container are treated by the Parramatta WTP
  - Treated water is discharged into the Parramatta River

The anecdotal onsite construction activities do not indicate potential copper contamination into groundwater. Sydney Metro has licenses to discharge treated water into the Parramatta River and water quality must meet eligible criteria before doing so.

Continuous groundwater level monitoring for the GWMW has been checked using logger data (since February 2024). The recorded groundwater levels have been stable since the start of construction (July 2023) and do not indicate an obvious change in groundwater conditions during construction.

6.3 Potential Degradation of Groundwater Quality

Nearby sensitive ecological receptors comprise flora and fauna of the Parramatta River. There are no high priority groundwater dependent ecosystems (GDEs) within 40 m of the Parramatta site.

Consequence

Due to the lack of sensitive receptors immediately surrounding and within the Parramatta site, the consequence of degradation of groundwater is assessed as *moderate.*

Likelihood

The GMP trigger value assessment criterion for copper been exceeded several times, but not consistently, at PM_BH14. Box and whisker plots for copper results from the Parramatta GWMWs prior to and post construction works are shown in **Figure 2.** Temporal changes for copper in groundwater at Parramatta (shallow aquifer) are shown on the MKA plot provided in **Appendix A**. The statistic trend for copper in PM_BH14 was determined to be increasing.

The interquartile range of the PM_BH14 box plot (all results) is within the same range as the box and whisker plot for baseline Parramatta shallow GWMW copper results, indicating that copper in groundwater in PM_BH14 has largely remained within pre-construction conditions. The results show that the copper concentration at downgradient PM_BH15 is much lower than both surrounding GWMWs, indicating that it is unlikely that copper in groundwater flowing offsite is due to onsite activities. Reported copper in further downgradient SMW_BH004_s was a reportable change in the Round 9 October 2024 GME (Epic, 2024), however, was not considered to be statistically significant according to MKA. Although MKA does indicate elevated copper in PM_BH14 to be increasing, localised copper concentrations (in PM_BH15 and SMW_BH004_s) are largely within historical results and are not considered to be increasing by MKA at this stage. The elevated copper concentrations are likely to be localised and attributable to 'background' concentrations of the surrounding area. Site construction is unlikely to have contributed as a sole point source.

Therefore, the likelihood of degradation of groundwater in the local area as a result of construction activities is assessed as *unlikely*.

Risk Classification

The risk from copper contamination in groundwater causing potential degradation within and around sensitive receptors is assessed as <u>*low*</u>.

6.4 Potential Risks to Environment

The closest ecological receptors are fauna and flora of the Parramatta River. There are no high priority groundwater dependent ecosystems (GDEs)/culturally significant sites/water supply bores within 40 m of the Parramatta site, as per the GMP.

Consequence

Copper is toxic to aquatic organisms at high concentrations (US EPA, 2024). Acute effects can cause death to plants and animals. Chronic exposure can impact survival, growth, and reproduction (US EPA, 2024). The lack of sensitive ecological receptors, however, indicates harm is *unlikely*.

Concentrations of copper within PM_BH14 range from 15-75 µg/L. The 95% species protection level for copper is 1.4 µg/L. Therefore, the consequence of harm to ecological receptors is *moderate*.

Likelihood

The following relevant contaminant exposure pathways exist:

- Groundwater migration – discharge to surface water (offsite)

The likelihood of the exposure pathways being complete for recreational users of the Parramatta River is reduced due to the site being 310 m from Parramatta River. The shallow aquifer is expected to be hydraulically connected with the river. Simple analytical hydrogeological equations have been used to determine the retarded travel time from this copper exceedance in PM_BH14 to reach the Parramatta River. This utilised on-site data and literature sources. The equations used are inherently conservative as effects of dilution and dispersion were not included, and that groundwater would flow directly into the Parramatta River. It was estimated that the retarded travel time to reach the parramatta Rier was greater than 100,000 years. Hydrogeological calculations are provided in **Appendix C**.

Therefore, the likelihood of harm to flora and fauna of the Parramatta River interacting with copper concentration in PM_BH14 is *highly unlikely*.

Risk Classification

The risk from contaminated copper in groundwater to flora and fauna of the Parramatta River is assessed as *low*.

6.5 Potential Risks to Human Health

The human health receptors comprise:

- Onsite receptors: construction/trench workers of the Parramatta site
- Off-site receptors: recreational users of the Parramatta River

Neighbours to site are not considered as receptors as the site boundary is fenced and excluded to the general public, and groundwater is >4.0 mbgl (Epic, 2024). Consideration of domestic drinking water has not been included due to groundwater within the alluvial aquifer not being used for drinking water.

Consequence

Copper is an essential trace element for human health and is present at very low concentrations in the environment (NHMRC, 2011). Copper poisoning can occur from high concentrations in the human body, which can result in cirrhosis of the liver and death. Less severe symptoms include nausea, abdominal pain, and vomiting (NHMRC, 2011). The ADWG indicate that copper intake from water would normally be less than 10% of total intake.

Concentrations of copper within PM_BH14 range from 15-75 µg/L. The ADWG drinking water criterion for copper is 2,000 µg/L, which represents chronic exposure. This is not applicable to construction workers but can be seen as applicable to off-site users in the Parramatta River. There are no standards for acute exposure, however, it would require a value greater than 2,000 µg/L as this represents long term exposure.

Therefore, the consequence of the immediate risk to human health (both construction and off-site users) from copper levels in PM_BH14 is *minor.*

Likelihood

The following relevant contaminant exposure pathways to construction workers comprise:

- Incidental ingestion of contaminated groundwater
- Direct contact (dermal) with contaminated groundwater
- Inhalation of dusts contaminated by groundwater
- Groundwater migration – discharge to surface water (offsite)

The following relevant contaminant exposure pathways to users of the Parramatta River comprise:

- Incidental ingestion of contaminated groundwater

The main pathways of copper into the human body are ingestion, inhalation, and dermal (DCCEEW, 2022a). This likelihood of the pathways for construction workers is minimised given:

- Workers wear PPE including masks (where required), long sleeve shirts, pants, safety glasses, and manual handling gloves (where required)
- Workers access to "clean" areas onsite, whereby eating rooms are separated from construction/potentially contaminated areas
- Workers have access to hygiene stations (e.g. hand washing)
- Dewatering takes place as needed

Therefore, the likelihood of construction workers interacting with copper concentration in PM_BH14 is *unlikely.*

The likelihood of the exposure pathways being complete for recreational users of the Parramatta River is reduced due to the site being 310 m from Parramatta River. As detailed in **Section 6.4**, the retarded travel time for copper concentrations in the shallow aquifer at Parramatta to reach the Parramatta River are greater than 100,000 years. Hydrogeological calculations are provided in **Appendix C**.

Therefore, the likelihood of users of the Parramatta River interacting with copper concentration in PM_BH14 is *highly unlikely*.

Risk Classification

The risk from contaminated copper in groundwater to construction workers is assessed as *low.*

The risk from contaminated copper in groundwater to users of the Parramatta River is assessed as *negligible*.

7 RISK ANALYSIS AND EVALUATION: SMW_WTP_BH03A_W – TOTAL PHOSPHORUS

A risk assessment for copper in SMW_WTP_BH03A_w is provided in the following subsections. Background information for the site setting has been obtained from the Westmead Station DSI completed by Epic (2022).

7.1 Site and Groundwater Monitoring Well Context

The closest water body to the Westmead site is Domain Creek, located 300 m east of the GWMW and 360 m east of the site boundary. Domain Creek flows in a northerly direction for 1.0 km before discharging into the Parramatta River (Epic, 2022). A map of the Westmead site is provided in **Figure 5**.

The ground model for the site comprises residual soil (clay) and fill overlying Ashfield Shale. Siltstone near the Westmead site has been logged as shallow as 0.55 mbgl (SMW_WTP_BH02_w). Groundwater in the residual clay soil may be perched (GLC, 2022). There is vertical hydraulic connection from the overlying unconfined aquifers to the underlying Ashfield Shale, however, the degree of vertical connection is expected to be low (GLC, 2022).

Groundwater at Westmead is estimated to flow to the east/northeast towards Domain Creek and the Parramatta River. Due to groundwater being located within the Ashfield Shale, it is unlikely to be hydraulically connected to the nearby water bodies.

In unsealed areas of the Westmead site, infiltration is expected into the soil profile followed by percolation to the water table. Any overland flow would likely be towards the north or east which would discharge to stormwater drains on Alexandra Avenue or Hassall Street, respectively.

Deep station box excavation at the Westmead site has proceeded, meaning groundwater ingress is occurring and dewatering is taking place as needed. This is typically groundwater from the bedrock (deep) aquifers.

SMW_WTP_BH03A_w is screened at 15 – 21 mbgl, targeting the underlying Ashfield Shale aquifer (siltstone/sandstone). It is located approximately 50 m east (i.e., downgradient/lateral to) of the Westmead site boundary. The GWMW has been sampled since the R2 GME (January 2023) for the GMP. Hydraulic conductivity at SMW_WTP_BH02 (also located offsite, approximately 85 m northwest (upgradient) of site) was measured to be between 0.001 – 0.009 m/day in Ashfield Shale (GLC, 2022).

Box and whisker plots for total phosphorus results from the deep Westmead GWMWs during construction works are shown on **Figure 4**. Construction began early 2023. Although the two GWMWs were sampled prior to construction, total phosphorus was not tested until R5 October 2023; no baseline results are available for the GWMWs. The plots show total phosphorus results from Westmead GWMWs screened in the bedrock (deep) aquifer during the construction phase.

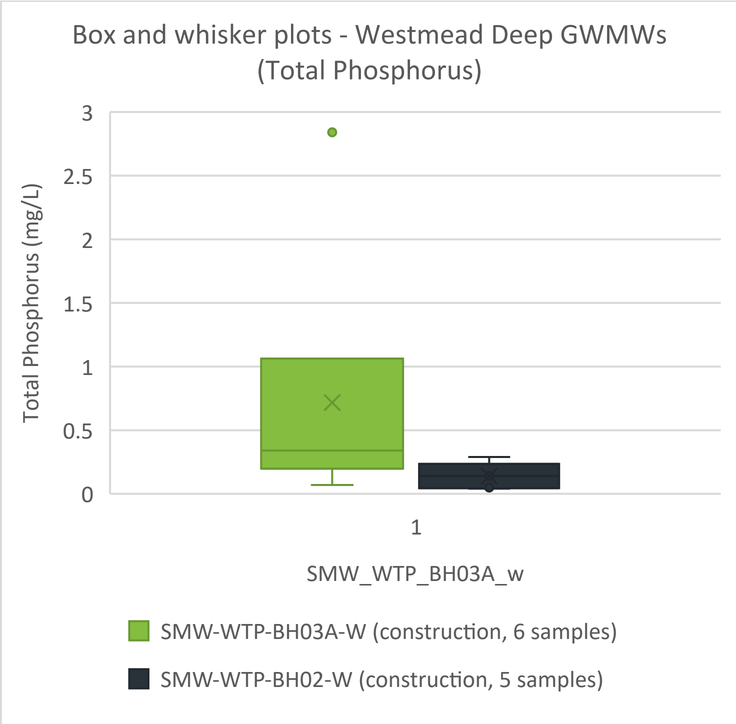


Figure 4. Box and whisker plots showing total phosphorus results at Westmead deep groundwater monitoring wells

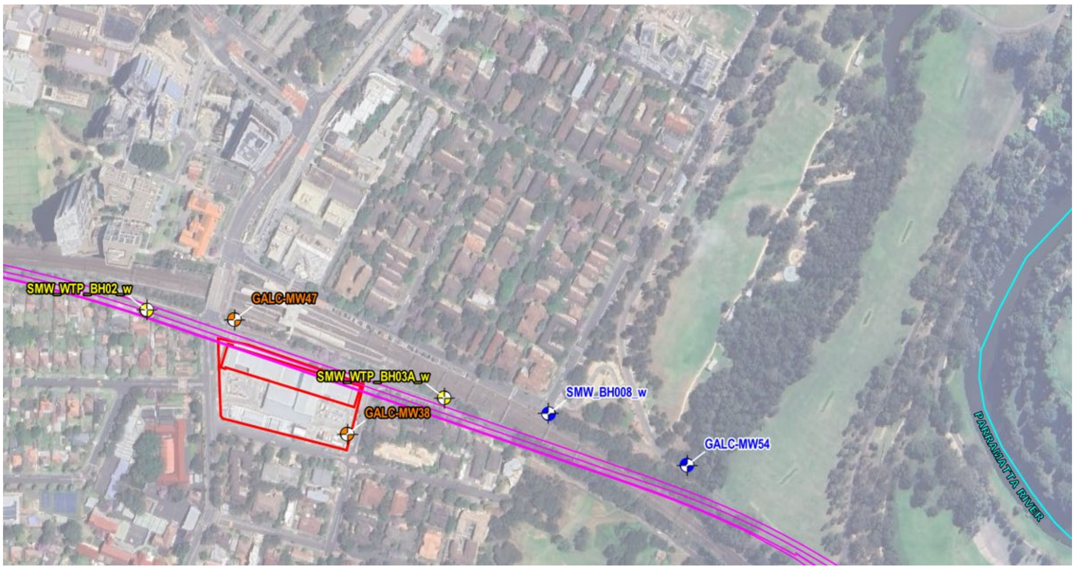


Figure 5. Map of Westmead Station – Groundwater Monitoring Wells

7.2 Potential Introduction of Contaminants from Construction

GLC site representatives were queried in December 2024 regarding Westmead site activities for the past six months, with details below:

- Construction activities
  - Excavation of the station box, tunnels, and caverns completed in early September 2024
  - Formwork construction, waterproofing, reinforcement, and concrete works underground ongoing
- Spills or events
  - A few minor spills (<5 L) of hydraulic oil confined to hardstand areas and fully contained onsite. Contents did not enter any nearby drains or waterways
- Onsite water management
  - Dewatering of groundwater ingress into the station box as needed
  - All water treated through the onsite WTP and reused onsite
  - No offsite discharge has occurred during this time

The anecdotal onsite construction activities do not indicate potential total phosphorus contamination into groundwater. Continuous groundwater level monitoring for the GWMW has been checked using logger data (since January 2022). The recorded groundwater levels have lowered gradually approximately 13 m since the start of construction (early 2023), but not below the allowable construction drawdown level (as calculated in the Project Groundwater Modelling Reports (GMRs)).

7.3 Potential Degradation of Groundwater Quality

The nearest sensitive receptors comprise are fauna and flora of Domain Creek and Parramatta Creek, and the surrounding parkland (Parramatta Park). There are no high priority GDEs/culturally significant sites/water supply bores within 40 m of the Westmead site. As detailed in **Section 7.1**, it is unlikely that the groundwater within SMW_WTP_BH03A_w (Ashfield Shale aquifer) will be hydraulically connected to water contained with Domain Creek.

Consequence

Due to the lack of sensitive receptors immediately surrounding and within the Westmead site, the consequence of degradation of groundwater is assessed as *moderate*.

Likelihood

The GMP trigger value assessment criterion for total phosphorus has been exceeded several times at SMW_WTP_BH03A_w. Box and whisker plots for total phosphorus results from the deep Westmead GWMWs during construction works are shown on **Figure 4**. Temporal changes for total phosphorus in groundwater at Westmead (deep aquifer) are shown on the MKA plot provided in **Appendix A.** The statistical trend for total phosphorus in SMW_WTP_BH03A_w was determined to be increasing.

There are no available baseline concentrations for total phosphorus for the deep Westmead GWMWs prior to construction. The interquartile range of total phosphorus for SMW_WTP_BH02_w is within the lower whisker/lower quartile (Q1) of that of SMW_WTP_BH03A_w. MKA indicates that total phosphorus in SMW_WTP_BH02 is statistically stable.

Per **Section 7.1**, the impact of potentially contaminated groundwater to receptors is highly limited. The exposure pathway to ecological receptors is limited. Considering that the horizontal hydraulic conductivity is very low, a maximum of 0.009 m/day, there will be limited lateral movement of groundwater within the aquifer. Upwards vertical seepage into the residual soil (which may be connected to the Domain Creek, 400 m away from the site) will be reduced due to the vertical hydraulic conductivity being lower than the horizontal hydraulic conductivity. There is also unlikely to be a pressure gradient (with groundwater levels in the residual deposits being lower than groundwater levels in the Ashfield Shale) forcing the vertical seepage into the residual soil.

Due to the exceedances being located within the Ashfield Shale (i.e., hydraulically isolated from the ecological receptors), the likelihood of total phosphorus contamination in groundwater causing potential degradation in sensitive receptors is assessed as *unlikely*.

Risk Classification

The risk from contaminated total phosphorus in groundwater to cause potential degradation of sensitive receptors is assessed as *low*.

7.4 Potential Risks to Environment

The closest ecological receptors are fauna and flora of Domain Creek and Parramatta Creek, and the surrounding parkland (Parramatta Park). There are no high priority GDEs/culturally significant sites/water supply bores within 40 m of the Westmead site.

As detailed in **Section 7.1**, there is a lack of ecological receptors and the exposure pathway is limited.

Consequence

Excessive total phosphorus levels, in conjunction with other necessary nutrients and conditions, can result in plant and algal blooms in aquatic environments/eutrophication (DCCEEW, 2022b). This is considered to be a minor consequence given eutrophication cannot immediately occur without other required conditions (e.g. excessive nitrogen). Eutrophication can lead to anoxic conditions and environmental degradation. Therefore, the consequence of immediate harm to the environment from total phosphorus is *minor*.

Likelihood

The following relevant contaminant exposure pathways exist:

- Groundwater migration – discharge to surface water (offsite)

Per **Section 7.3**, upwards movement (to upper aquifers/water bodies) of potentially contaminated groundwater is expected to be limited.

Due to groundwater being located within the Ashfield Shale, it is unlikely to be hydraulically connected to the nearby surface water. There is also a limited ability of groundwater in the Ashfield Shale to seep into the residual soil. Therefore, the likelihood of harm to surrounding ecological receptors is *unlikely.*

Risk Classification

The risk from contaminated total phosphorus in groundwater to environment receptors surrounding Westmead is assessed as *low*.

7.5 Potential Risks to Human Health

The human health receptors comprise:

- Construction workers interacting with the Westmead site

Per **Section 7.1**, the lowered groundwater level is not expected to be hydraulically connected to the Parramatta River, and therefore, not in contact with recreational receptors of the river.

Off-site human receptors have not considered due to the depth of groundwater (>15 mbgl) within SMW_WTP_BH03A_w, limiting interaction. Groundwater use is likely to be limited as the site is located in a residential and health precinct area and there are no registered bores in the vicinity of the site. Consideration of domestic drinking water has not been included due to groundwater within the Ashfield Shale aquifer not being used for drinking water.

Consequence

DCCEEW (2022b) states there are no specific health effects to humans directly associated with total phosphorus. The National Institutes of Health (2023) also claims that high phosphorus intake rarely produces adverse effects in healthy humans, however, notes that some studies have found associations between high phosphorus intakes and cardiovascular, kidney, and bone adverse effects and an increased risk of death. The consequence to human health could be moderate, however, the immediate risk would be *minor*.

Applicable NSW guidelines (ANZG, ANZECC, NEPM, ADWG) lack a threshold for total phosphorus for human health. Therefore, a trigger value for total phosphorus was calculated (0.192 mg/L) for the GMP using statistical analysis and available historical data for the GWMW. The trigger value, however, is more applicable to ecological receptors.

Therefore, the consequence of the immediate risk to human health (both construction and off-site users) from total phosphorus levels in SMW_WTP_BH03A_w is *minor*.

Likelihood

The following relevant contaminant exposure pathways to construction workers comprise:

- Incidental ingestion of contaminated groundwater
- Direct contact (dermal) with contaminated groundwater
- Inhalation of dusts contaminated by groundwater
- Groundwater migration – discharge to surface water (offsite)

The main pathways of copper into the human body are ingestion, inhalation, and dermal (DCCEEW, 2022a). This likelihood of the pathways for construction workers is minimised given:

- Workers wear PPE including masks (where required), long sleeve shirts, pants, safety glasses, and manual handling gloves (where required)
- Workers access to “clean” areas onsite, whereby eating rooms are separated from construction/potentially contaminated areas
- Workers have access to hygiene stations (e.g. hand washing)
- Dewatering takes place as needed

Therefore, the likelihood of construction workers interacting with total phosphorus concentration in SMW_WTP_BH03A_w is *unlikely.*

Risk Classification

The risk from contaminated total phosphorus in groundwater to construction workers is assessed as *low*.

8 SUMMARY

The risk analysis and evaluation for PM_BH14 is summarised in **Table 4**.

Table 4. Risk analysis and evaluation for PM_BH14 (copper)

Risk	Consequence	Likelihood	Risk	Action
Risk to immediate human health	Minor	Highly unlikely	Low/ negligible	Continue quarterly monitoring
Risk to immediate environment	Moderate	Highly unlikely	Low	
Risk from introduction of contamination	Anecdotal evidence does not indicate potential contamination into groundwater.			
Risk from degradation around sensitive receptors	Moderate	Unlikely	Low	

The risk analysis and evaluation for SMW_WTP_BH03A_w is summarised in **Table 5**.

Table 5. Risk analysis and evaluation for SMW_WTP_BH03A_w (total phosphorus)

Risk	Consequence	Likelihood	Risk	Action
Risk to immediate human health	Minor	Unlikely	Low	Continue quarterly monitoring
Risk to immediate environment	Minor	Unlikely	Low	
Risk from introduction of contamination	Anecdotal evidence does not indicate potential contamination into groundwater.			
Risk from degradation around sensitive receptors	Moderate	Unlikely	Low	

9 CONCLUSIONS

The risk assessments for PM_BH14 (copper) and SMW_WTP_BH03A_w (total phosphorus) indicate the potential risk to groundwater as a result of site derived contamination is low. A management response is not required, and quarterly groundwater monitoring, as per the GMP, can resume.

A summary of the risk assessment findings per the GMP is provided in **Table 6**.

Table 6. Summary of Risk Assessment Results

Summary of risk assessment	Groundwater monitoring well (analyte of concern)	
	PM_BH14 (copper)	SMW_WTP_BH03A_w (total phosphorus)
1. Has potential immediate risk to human health or the environment been demonstrated?	No	No
2. Has potential introduction of contaminants as a result of construction activities been demonstrated?	No	No
3. Has potential degradation of groundwater quality within and around sensitive receptors been demonstrated?	No	No

10 REFERENCES

Baes III, C. F., 1984. *A Review and Analysis of Parameters for Assessing Transport of Environmentally Release Radionuclides through Agriculture,* Oak Ridge: Oak Ridge National Laboratory.
DCCEEW, 2022a. *Copper and compounds.* [Online]
Available at: https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/copper-and-compounds#tabs-2
[Accessed 12 12 2024].
DCCEEW, 2022b. *Total Phosphorus.* [Online]
Available at: https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/total-phosphorus
[Accessed 12 11 2024].
Epic, 2022. *Westmead Station - Detailed Site Investigation,* Sydney: GLC.
Epic, 2023. *Parramatta Station - Detailed Site Investigation,* Sydney: GLC.
Epic, 2024. *Factual Groundwater Monitoring Report (Round 9 - October 2024),* Sydney: GLC.
GLC, 2022. *Technical Report: Sydney Metro West – Western Tunnelling Package – Hydrogeological Interpretative Report,* s.l.: Sydney Metro.
Morris, D. A. & Johnson, A. I., 1967. *Summary of hydrologic and physical properties of rock and soil materials, as analyzed by the hydrologic laboratory of the U.S. Geological Survey, 1948-60,* s.l.: U.S. Government Printing Office.
NHMRC, 2011. *Australian Drinking Water Guidelines (2011) – Updated September 2022,* s.l.: NHMRC.
NIH, 2023. *Phosphorus.* [Online]
Available at: https://ods.od.nih.gov/factsheets/Phosphorus-HealthProfessional/
[Accessed 11 12 20234].
US EPA, 2024. *Aquatic Life Criteria - Copper.* [Online]
Available at: https://www.epa.gov/wqc/aquatic-life-criteria-copper
[Accessed 12 12 2024].

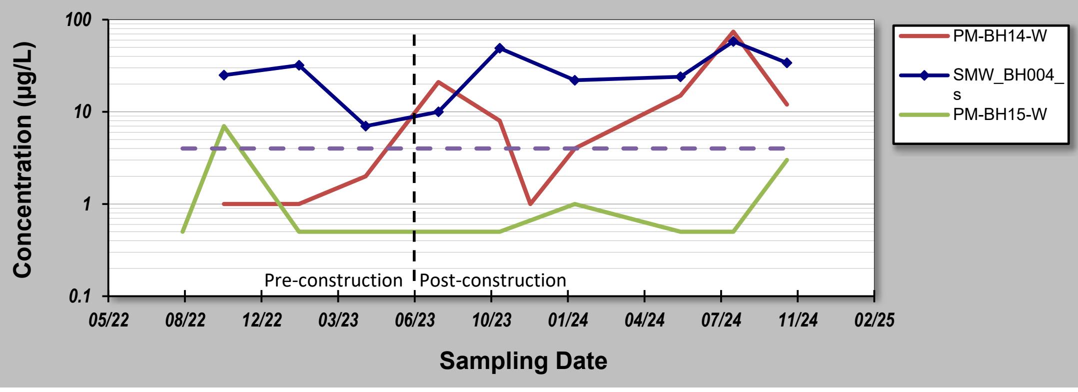
APPENDIX A MANN KENDALL TREND ANALYSIS

Mann-Kendall Analysis – SMW WTP GME R9 (October 2024)

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-25	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Copper
Conducted By:	Natalie Chandra	Concentration Units:	µg/L

Sampling Event	Sampling Date	PM-BH14-W	SMW_BH004_s	PM-BH15-W	Trigger			
		COPPER CONCENTRATION (µg/L)						
1	24/8/2022			0.5	4			
2	17/10/2022	1	25	7				
3	23/1/2023	1	32	0.5				
4	20/4/2023	2	7					
5	24/7/2023	21	10	0.5				
6	12/10/2023	8	49	0.5				
7	21/11/2023	1						
8	18/1/2024	4	22	1				
9	4/6/2024	15	24	0.5				
10	12/8/2024	74	58	0.5				
11	21/10/2024	12	34	3	4			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.60	0.57	1.41	0.00			
Mann-Kendall Statistic (S):		22	12	3	0			
Confidence Factor:		97.1%	87.0%	58.0%				
Concentration Trend:		Increasing	No Trend	No Trend				



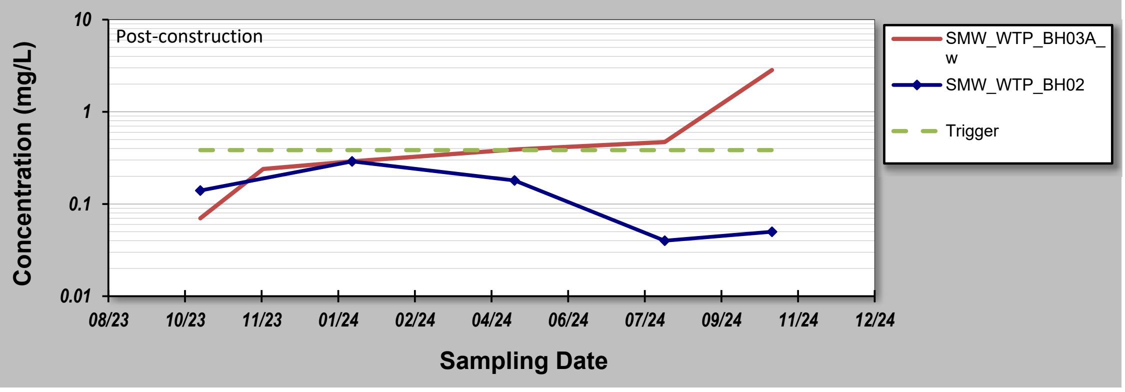
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	14-Jan-25	Job ID:	SCL220037.10
Facility Name:	WTP GME	Constituent:	Total Phosphorus as P (Organic Phosphate as P
Conducted By:	Natalie Chandra	Concentration Units:	mg/L

Sampling Event	Sampling Date	TOTAL PHOSPHORUS AS P (ORGANIC PHOSPHATE AS P) CONCENTRATION (mg/L)						
Sampling Point ID:		SMW_WTP_BH03A	SMW_WTP_BH02	Trigger				
1	11/10/2023	0.07	0.14	0.384				
2	21/11/2023	0.24						
3	18/1/2024	0.29	0.29					
4	3/5/2024	0.39	0.18					
5	9/8/2024	0.47	0.04					
6	18/10/2024	2.84	0.05	0.384				
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.46	0.73	0.00				
Mann-Kendall Statistic (S):		15	-4	0				
Confidence Factor:		99.9%	75.8%					
Concentration Trend:		Increasing	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

APPENDIX B RISK ASSESSMENT DEFINITIONS AND TABLES

Likelihood		Descriptor
Highly Likely/Almost Certain	HL	Very likely to occur as a result of the proposed project construction and/or operations; could occur multiple times during relevant impacting period.
Likely	L	Likely to occur during construction or during a 12-month timeframe; probability greater than 50%.
Possible	P	Less likely than not but still appreciable; probability of about 50%.
Unlikely	U	May occur during life of the project but probability well below 50%; unlikely but not negligible.
Highly Unlikely/Rare	HU	Highly unlikely to occur but theoretically possible.

Consequence		Descriptor
Very High	VH	The impact is considered critical to the decision-making process. Impacts tend to be permanent or irreversible or otherwise long-term and can occur over largescale areas. Very high sensitivity of environmental receptors to impact (e.g. national significance).
High	H	The impact is considered likely to be important in decision-making. Impacts tend to be permanent or irreversible or otherwise long to medium-term. Impacts can occur over large or medium scale areas. High-to-moderate sensitivity of environmental receptors to impact (e.g. state significance).
Moderate	Mo	The effects of the impact are relevant to decision-making including the development of environmental mitigation measures. Impacts can range from long-term to short-term in duration. Impacts can occur over medium scale areas or otherwise represent a significant impact at the local scale. Moderate sensitivity of environmental receptors to impacts (e.g. regional to local significance).
Minor	Mi	Impacts are recognisable/detectable but acceptable. These impacts are unlikely to be of importance in the decision-making process. Nevertheless, they are relevant in the consideration of standard mitigation measures. Impacts tend to be short-term or temporary and/or occur at local scale.
Negligible/Neutral	N	Minimal change to the existing situation. This could include, for example, impacts which are beneath levels of detection, impacts that are within the normal bounds of variation or impacts that are within the margin of forecasting error.

Likelihood \ Consequence	*Negligible*	*Minor*	*Moderate*	*High*	*Very High*
Highly Unlikely/Rare	Negligible	Negligible	Low	Low/ Medium	High
Unlikely	Negligible	Low	Low	Medium	High
Possible	Negligible	Low	Medium	Medium	High
Likely	Negligible	Medium	Medium	High	Extreme
Highly Likely/Almost Certain	Low	Medium	High	Extreme	Extreme

APPENDIX C HYDROGEOLOGICAL CALCULATIONS

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.10	m/d	For alluvial layer in PM per the HIR
Hydraulic gradient	i	0.00481	unitless	Between PM_BH14 and SMW_BH004_s, SWLs from October 2024
Effective porosity of aquifer	n	0.57	fraction	Effective porosity of clay (Morris & Johnson, 1967)
Thickness of saturated aquifer	b	12.80	m	Thickest alluvium from PM borelogs
Width of aquifer perpendicular to flow	w	220.00	m	PM site width
Distance to receptor	x	310.00	m	Distance from PM site boundary to PM River
Bulk density of aquifer materials	ρ	2.65	g/cm^3	Bulk density value for quartz
Soil-water partition co-efficient	Kd	35.00	l/kg	(Baes III, 1984)
Retardation factor of pollutant	R	163.7192982		

Groundwater flow velocity	v(GW)	0.00	m/s	0.00	m/day	0.31	m/year
Time for groundwater to reach receptor	t(GW)	31,708,135,384.62	seconds	366,992.31	days	1,005.46	years
Rate of groundwater flow through aquifer	Q	0.00	m^3/s	1.36	m^3/day	494.89	$m^3/year$

Contaminant flow velocity	v(contam)	0.00	m/s	0.00	m/day	0.00	m/year
Time for contaminant to reach receptor	t(contam)	5,191,233,673,846.15	seconds	60,083,723.08	days	164,612.94	years

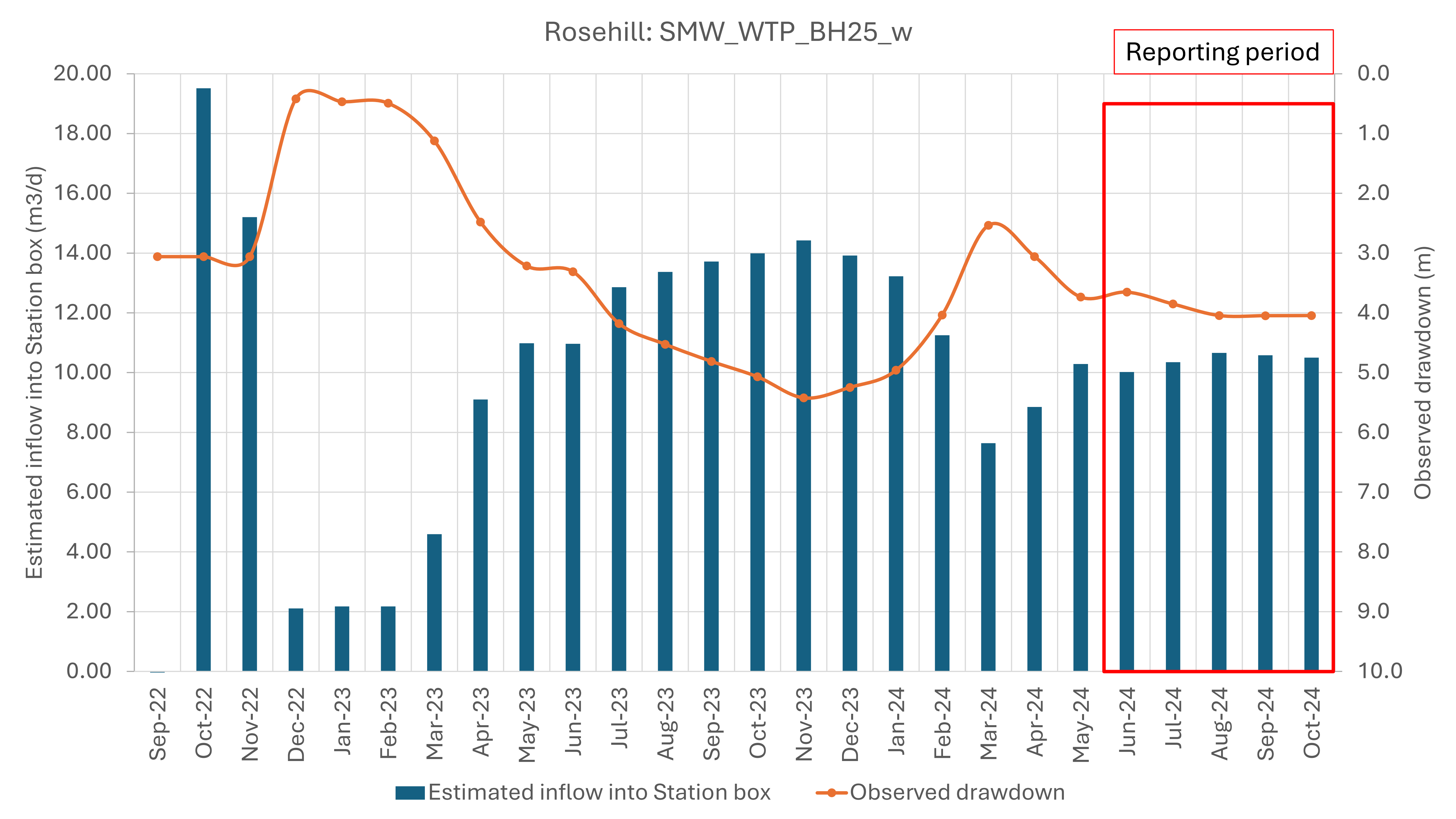
APPENDIX I – SALINITY AND PH IN-SITU MEASUREMENTS

pH and Salinity (TDS) Assessment

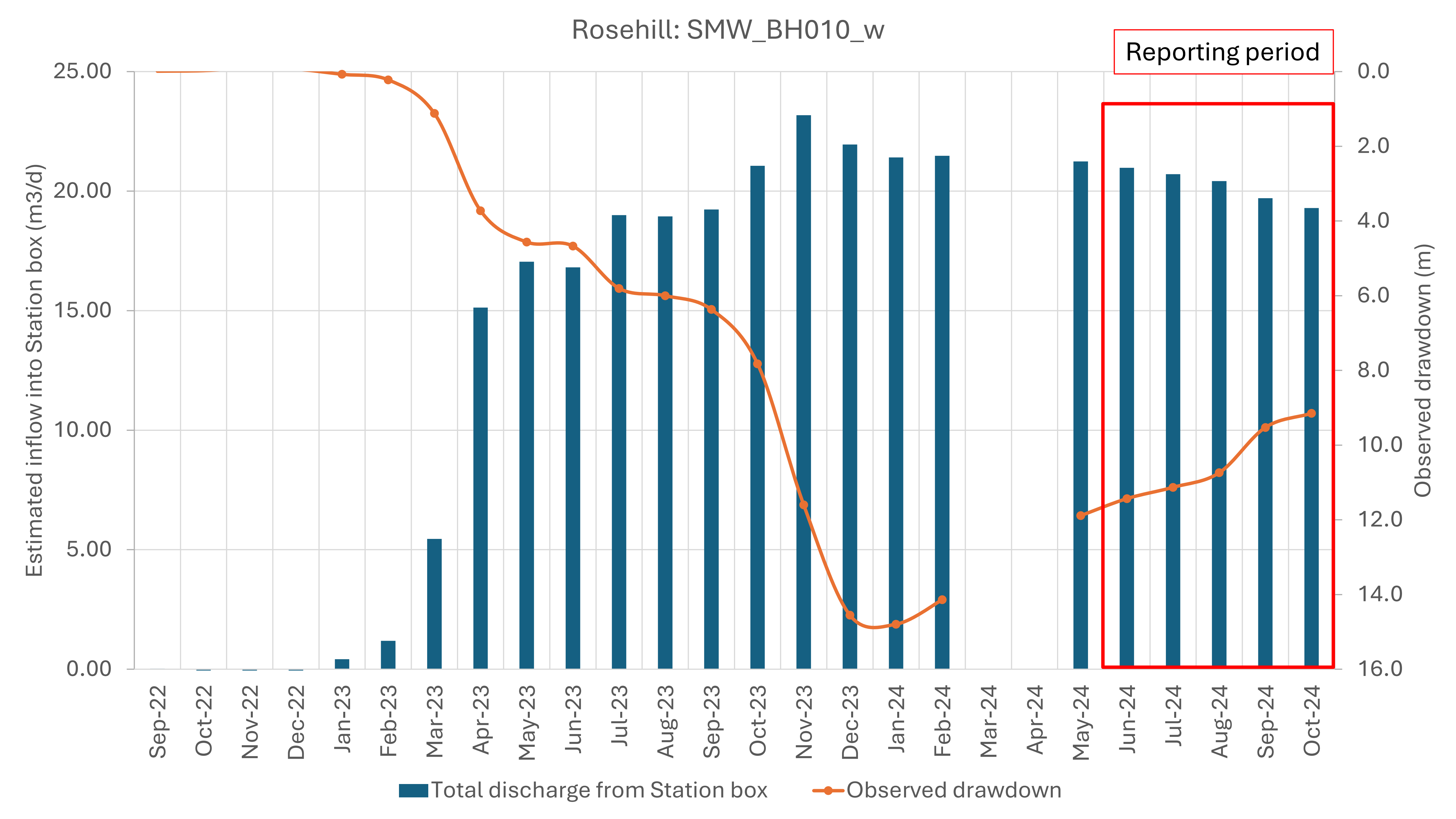
	pH												
	Jul-22	Oct-22	Jan-23	Apr-23	Jul-23	Oct-23	Nov-23	Jan-24	Mar-24	Apr/May 24	Aug-24	Oct-24	
GWMW ID	Round 0	Round 1	Round 2	Round 3	Round 4	Round 5	Round 5.5	Round 6	Round 6.5	Round 7	Round 8	Round 9	Comment
CZ1_BH13		6.09	6.12	6.15	6.17	7.11		6.15		6.3	6.18	6.28	
CZ2b_BH52		5.58											
CZ4e_MW01		5.03	5.92	5.73	6.06								
CZ4e_MW02		5.32				4.97		4.74		5.06	4.87	4.97	
CZ4e_MW03		6.01	5.9	5.59	5.85	5.54		5.32		5.32	5.52	5.19	
CZ4w_MW08		6.18											
CZ5_MW09						5.74		5.73		5.69	5.59	5.74	
CZ5_MW16		6.06	6.1	5.95	5.99	6.08		6.06					
CZ5a_MW102											7.27		
CZ5a_MW103											6.58	7	
CZ5a_MW104													
CZ6_MW05		6.57	6.53	6.69									
CZ6_MW07		5.3											
GALC_MW12					5.85	6.18		5.87					
GALC_MW16_w						7.37		6.83		6.88	6.85	6.92	
GALC_MW17			10.4										
GALC_MW18			6.22	6.13	6.29	6.02		6.12		5.76	5.98		
GALC_MW54								6.87					
PM_BH14		6.14	6.14	6.11	6.37	6.29	5.95	6.16		5.68	6.47	6.46	
PM_BH15		5.39	5.4		5.65	5.73		5.55		5.08	5.37	5.6	
PM_BH021				5.82									
PM_BH16		5.84											
PM_BH19		5.94											
SMW_ADD_BH02	0	5.05	6.41	6.14	6.51		5.36						
SMW_BH002_w		6.05											
SMW_BH004_s		5.75	6.64	6.41	6.03	6.17		6.04		5.79	6.06	6.79	
SMW_BH004_w				6.45									
SMW_BH008_w				6.35									
SMW_BH010	6.22												
SMW_BH057_s	6.54				6.22	6.13	5.25	6.07	6	5.83	5.4	5.65	
SMW_BH057_w						6.49		6.42	6.48	6.43	5.79	6.21	
SMW_BH25_s	7.14												
SMW_ENV009	6.95	6.93	6.98	6.74		6.71		6.58		6.58	6.44	6.72	
SMW_ENV010	6.11				6.07							6.03	
SMW_ENV039	6.27	6.1	6.11	6.03	6.21	6.11		6.11	6.19	6.11	6.03	6.12	
SMW_ENV042	5.74	5.6	5.69	5.58	5.74	5.61							
SMW_ENV045	6.76												
SMW_ENV083	5.24	5.22	5.31										
SMW_ENV088	6												
SMW_ENV089	6.68												
SMW_ENV145								5.94		5.98	5.85	6.01	
SMW_ENV149	5.87	5.94											
SMW_ENV224		6.66	6.48	6.37									
SMW_ENV210_w					5.67								
SMW_ENV226_s										6.54	6.41		
SMW_ENV227_w					6.82	6.72							
SMW_ENV234		6.21	6.34	6.34									
SMW_ENV283_s		5.42											
SMW_ENV236			5.04										
SMW_ENV295	4.62												
SMW_ENV299	4.87												
SMW_ENV294	4.75												
SMW_ENV300	5.71												
SMW_ENV300_s	4.39												
SMW_WTP_BH02			9.53	9.64	6.97	9.2	5.49	9.45		8.9	8.96	7.65	Monitor next round
SMW_WTP_BH057	6.69												
SMW_WTP_BH03A			6.45	6.76	6.79	6.64	5.9	6.95	6.68	6.86	6.52	7.5	
SMW_WTP_BH13	6.99	6.75	6.4	6.05	6.05	5.87	5.19	5.69	5.87	6.57	6.59	6.12	
SMW_WTP_BH18	5.86												
SMW_WTP_BH23		6.75											
SMW_WTP_BH25_w	5.83	6.24						5.06		5.22	4.97	5.13	
SMW_WTP_BH25_s			7.26	6.98	7.1	7.11		7.01		6.98	6.9	6.89	
SMW_WTP_BH30	6.15												
SMW_WTP_BH30s	5.96												
SMW_WTP_BH31A	6.96												
WM_BH04		6.52											

		TDS (Field)												
		Jul-22	Oct-22	Jan-23	Apr-23	Jul-23	Oct-23	Nov-23	Jan-24	Mar-24	Apr/May 24	Aug-24	Oct-24	
GWMW ID	Trigger value	Round 0	Round 1	Round 2	Round 3	Round 4	Round 5	Round 5.5	Round 6	Round 6.5	Round 7	Round 8	Round 9	Comment
CZ1_BH13	74,600		5,398	21,671		24	2,974		19,539		17,714	16,854		
CZ2b_BH52	47,940		2,591											
CZ4e_MW01	47,940		9,107	9,204		9								
CZ4e_MW02	47,940		8,320				13,420		11,622		13,409	12,090	13,071	
CZ4e_MW03	47,940		2,932	3,861		4	3,531		3,880		3,258	3,556	3,361	
CZ4w_MW08	36,860		6,539											
CZ5_MW09	45,280						6,970		6,857		7,388	6,968	7,208	
CZ5_MW16	45,280		3,556	4,621		6	4,357		3,523					
CZ5a_MW102	45,280											11,056		
CZ5a_MW103	45,280											22,042	6,025	
CZ5a_MW104	45,280													
CZ6_MW05	36,860		786	767										
CZ6_MW07	36,860		2,535											
GALC_MW12	74,600					10	6,657		7,384					
GALC_MW16_w	10,726						2,061		9,340		6,420	10,179	11,453	Monitor next round
GALC_MW17	10,726			5,843										
GALC_MW18	48,360			5,948		6	5,711		5,128		6,284	4,901		
GALC_MW54	11,280								2,080					
PM_BH14	938		403	442		0	365	351	332		349	320	320	
PM_BH15	938		468	481		1	22		442		871	598	533	
PM_BH021	3,728													
PM_BH16	938		135											
PM_BH19	938		1,853											
SMW_ADD_BH02	10,726		43	102		12		10,179						
SMW_BH002_w	3,728		31											
SMW_BH004_s	938		202	110		0	203		325		313	183	300	
SMW_BH004_w	3,728		23											
SMW_BH008_w	20,844													
SMW_BH010	37,266													
SMW_BH057_s	48,360					1	430	351	384	423	401	377	270	
SMW_BH057_w	10,726						3,087		7,091	3,763	6,891	4,635	8,404	
SMW_BH25_s	74,600													
SMW_ENV009	48,360		858	1,293			781		923		992	1,356	1,112	
SMW_ENV010	47,940					1							903	
SMW_ENV039	36,860		3,670	19,480		19	17,244		17,621	20,345	17,924	17,758	19,194	
SMW_ENV042	47,940		998	15,717		17	15,049							
SMW_ENV045	74,600													
SMW_ENV083	47,940		3,796	9,067										
SMW_ENV088	47,940													
SMW_ENV089	47,940													
SMW_ENV145	37,266								15,203		15,855	4,820	16,822	
SMW_ENV149	74,600		1,453											
SMW_ENV224	74,600		1,911	2,808										
SMW_ENV210_w	74,600					15								
SMW_ENV226_s	74,600										5,766	4,517		
SMW_ENV227_w	74,600					2	1,820							
SMW_ENV234	74,600		21,879	31,655										
SMW_ENV283_s	36,860		1,365											
SMW_ENV236	74,600			17,297										
SMW_ENV295	11,280													
SMW_ENV299	11,280													
SMW_ENV294	11,280													
SMW_ENV300	11,280													
SMW_ENV300_s	11,280													
SMW_WTP_BH02	20,844			462		9	827	7,988	278		481	5,707	8,190	
SMW_WTP_BH057	10,726													
SMW_WTP_BH03A	20,844			116		10	236	10,348	8,554	12,402	8,209	11,570	11,674	
SMW_WTP_BH13	47,940		618	4,589		7	6,167	6,929	7,267	8,470	1,096	16,854	4,238	
SMW_WTP_BH18	36,860													
SMW_WTP_BH23	-		559											
SMW_WTP_BH25_w	74,600		9,464						14,033		15,208	14,033	15,588	
SMW_WTP_BH25_s	74,600			2,099		2	1,538		1,865		2,297	2,022	2,812	
SMW_WTP_BH30	74,600													
SMW_WTP_BH30s	74,600													
SMW_WTP_BH31A	11,280													
WM_BH04	11,280		1,729											

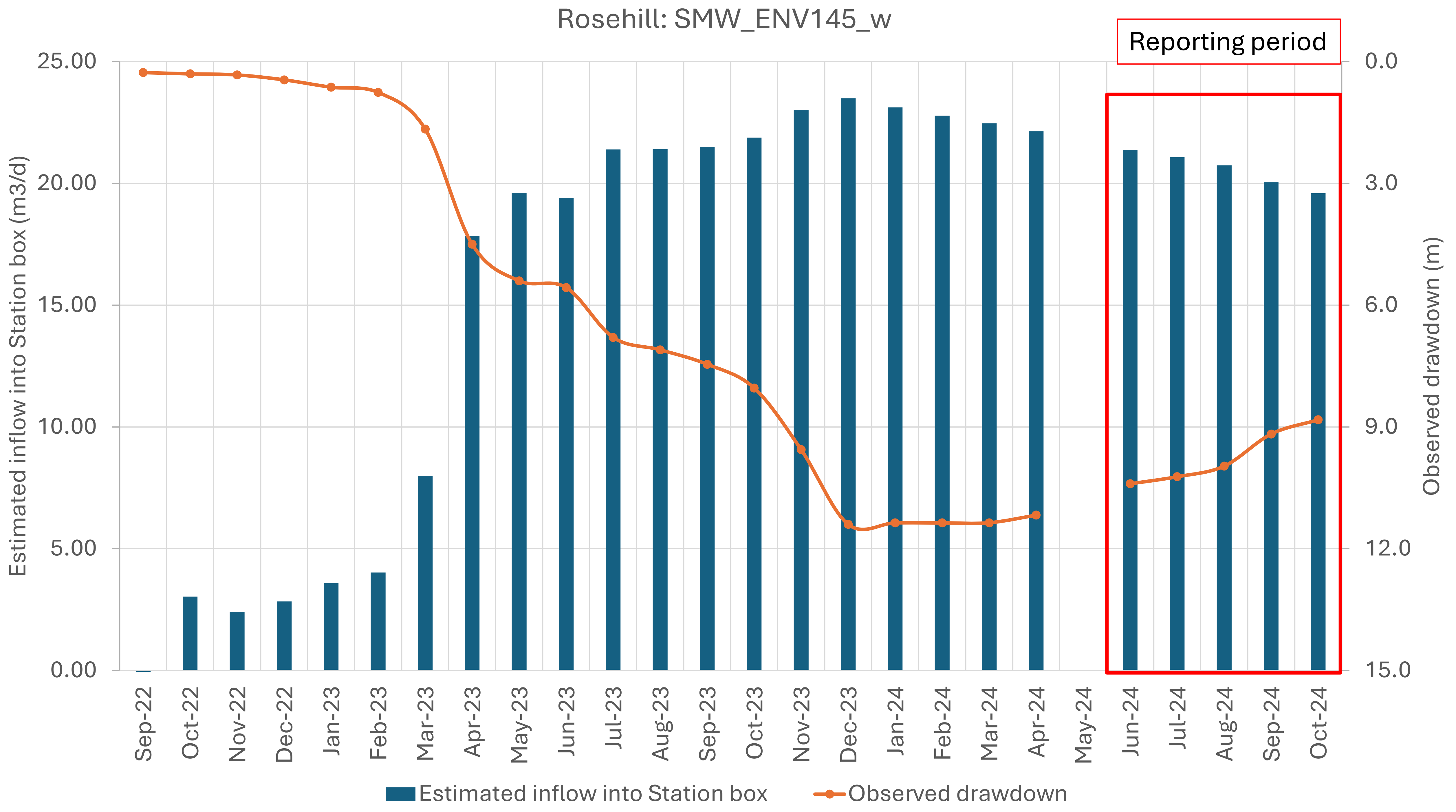
APPENDIX J – GROUNDWATER INFLOW ESTIMATES



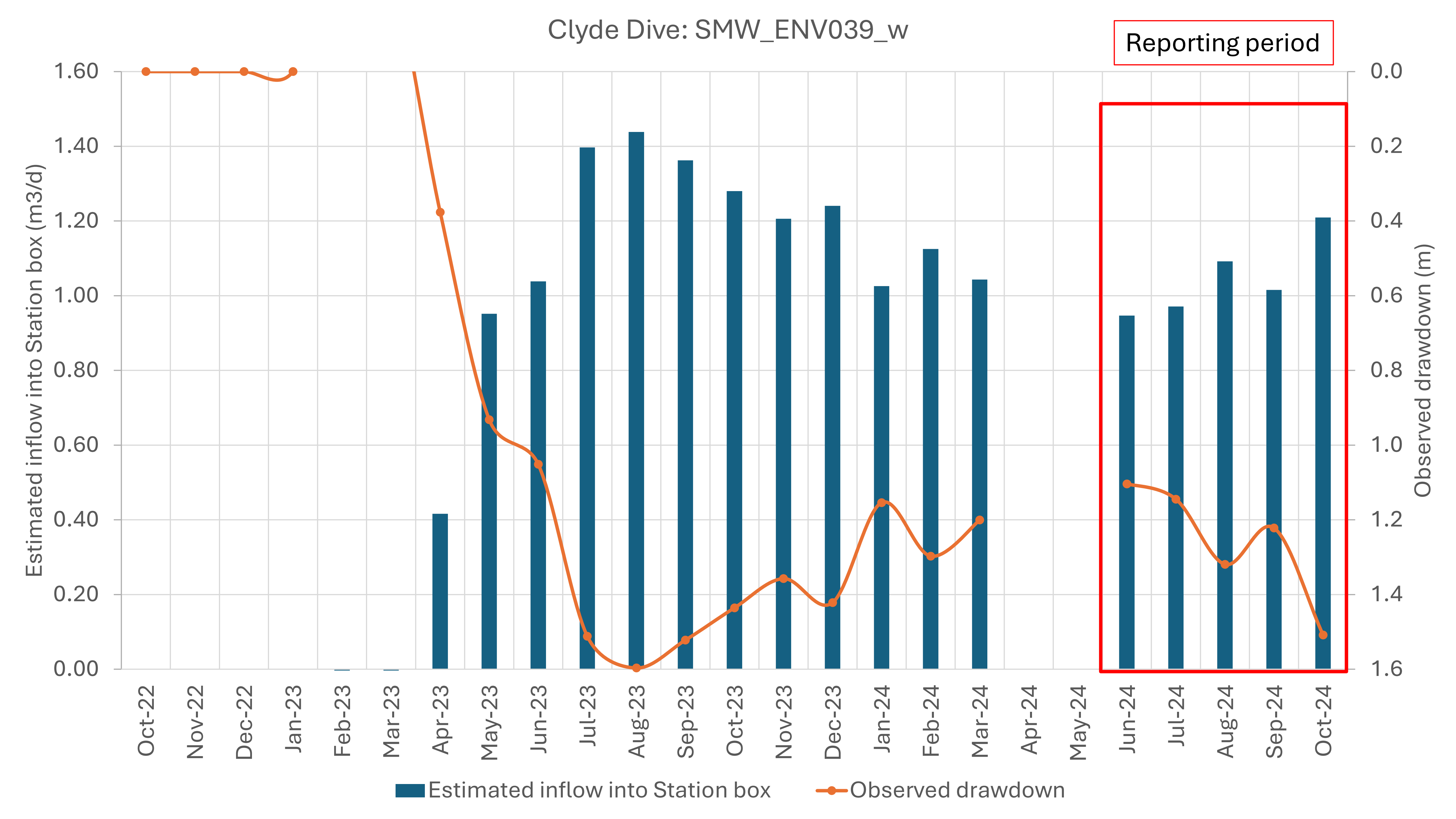
Rosehill: SMW_WTP_BH25_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Estimated inflow into Station box
Observed drawdown



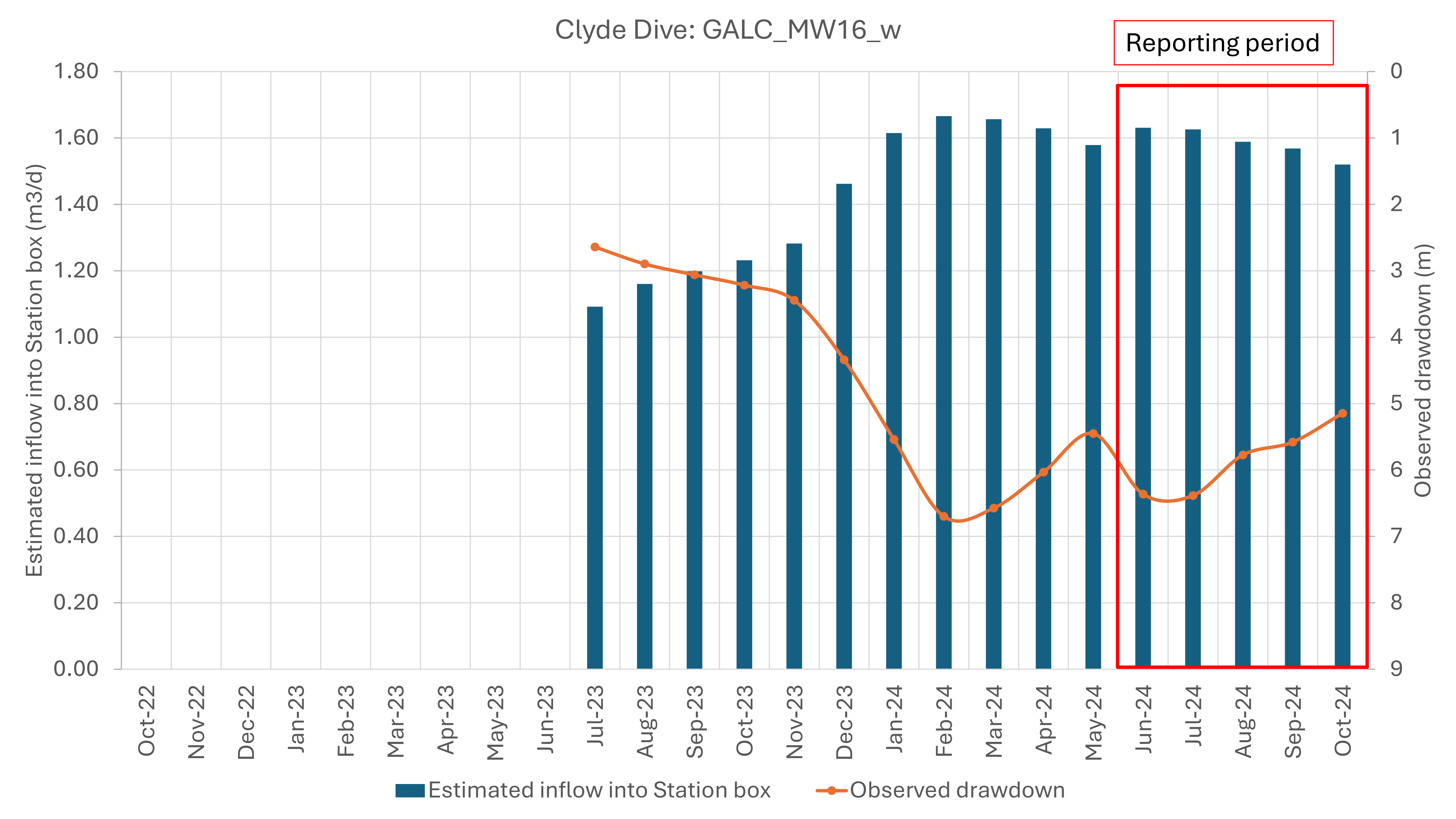
Rosehill: SMW_BH010_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
25.00
20.00
15.00
10.00
5.00
0.00
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Total discharge from Station box
Observed drawdown

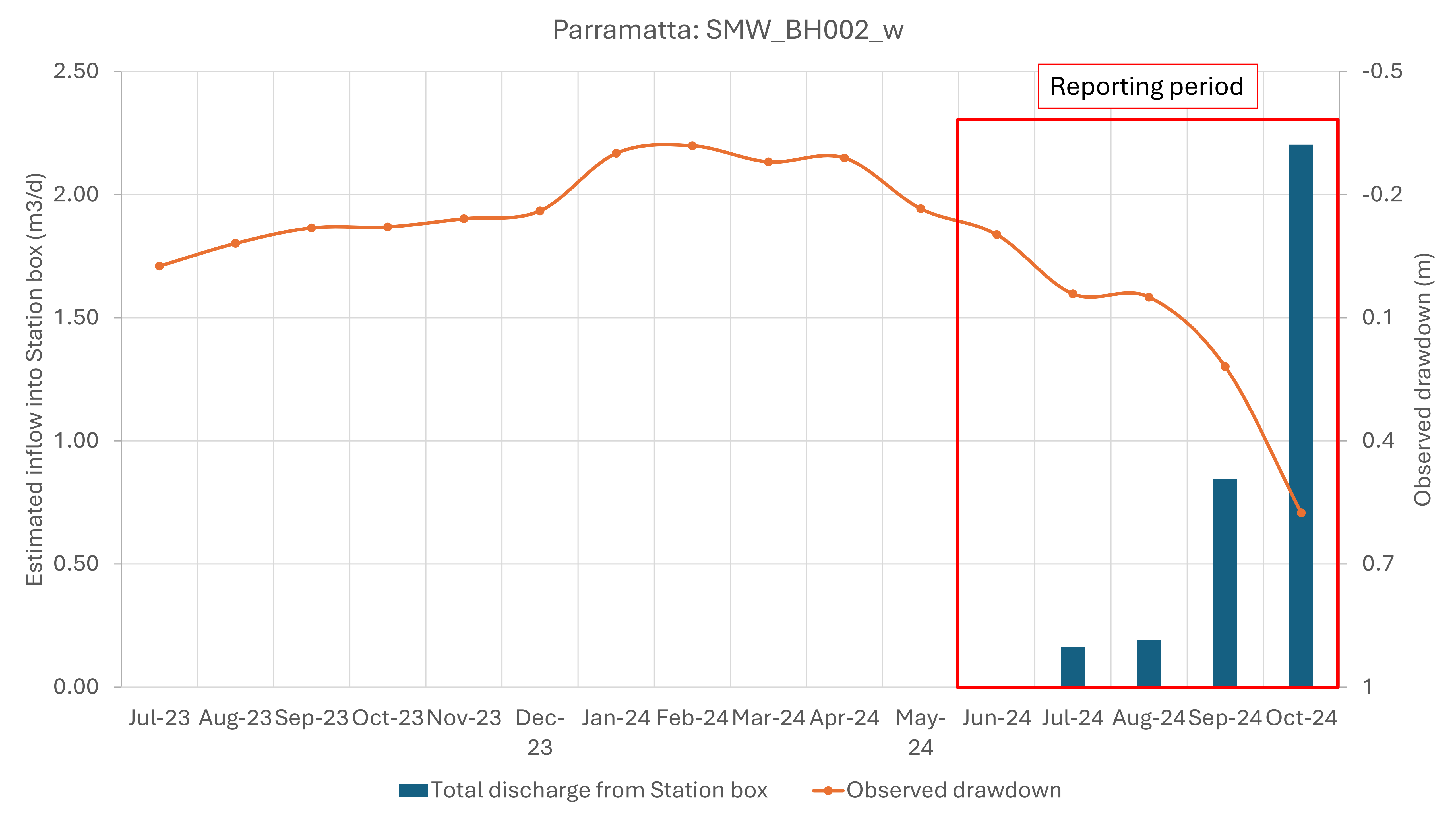


Rosehill: SMW_ENV145_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
25.00
20.00
15.00
10.00
5.00
0.00
0.0
3.0
6.0
9.0
12.0
15.0
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Estimated inflow into Station box
Observed drawdown

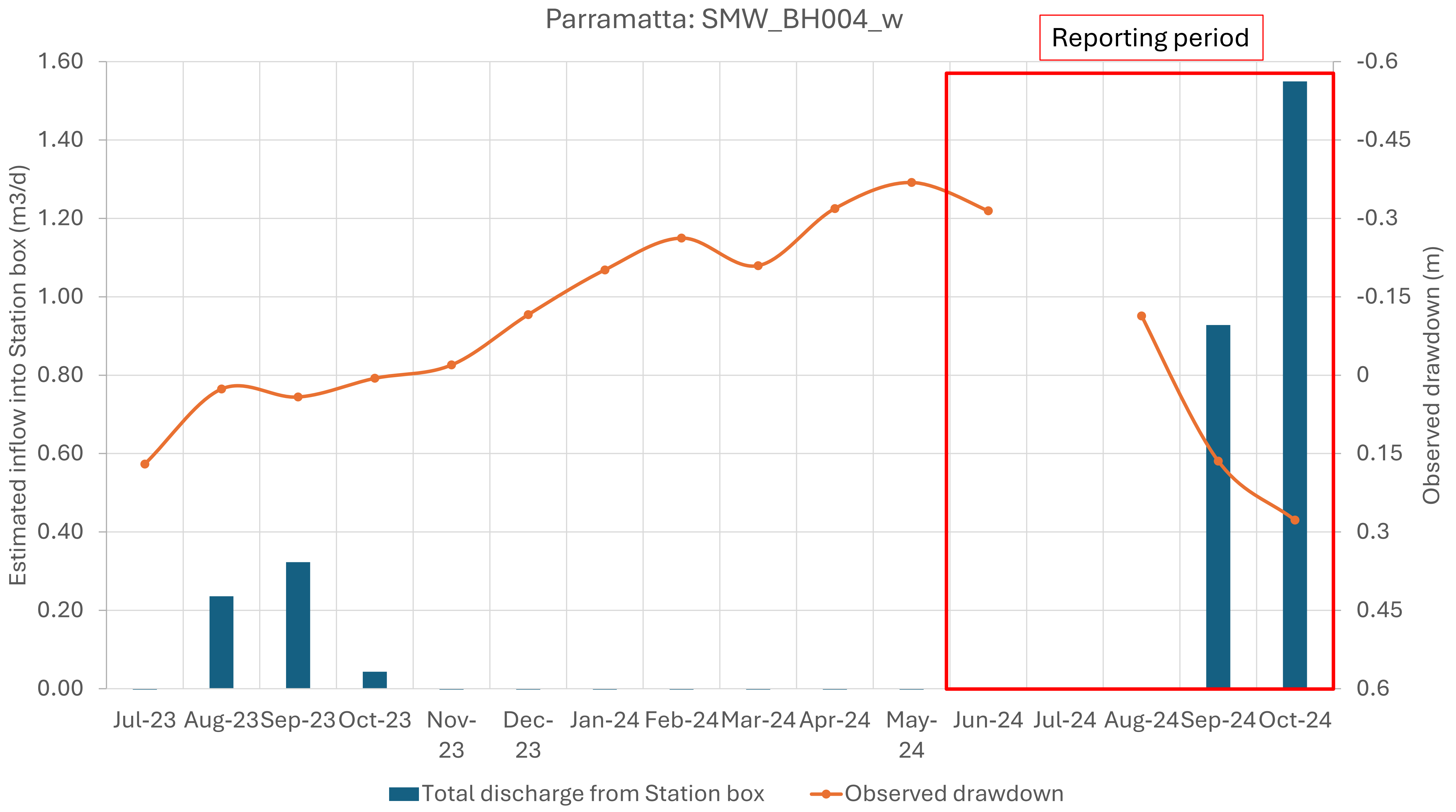


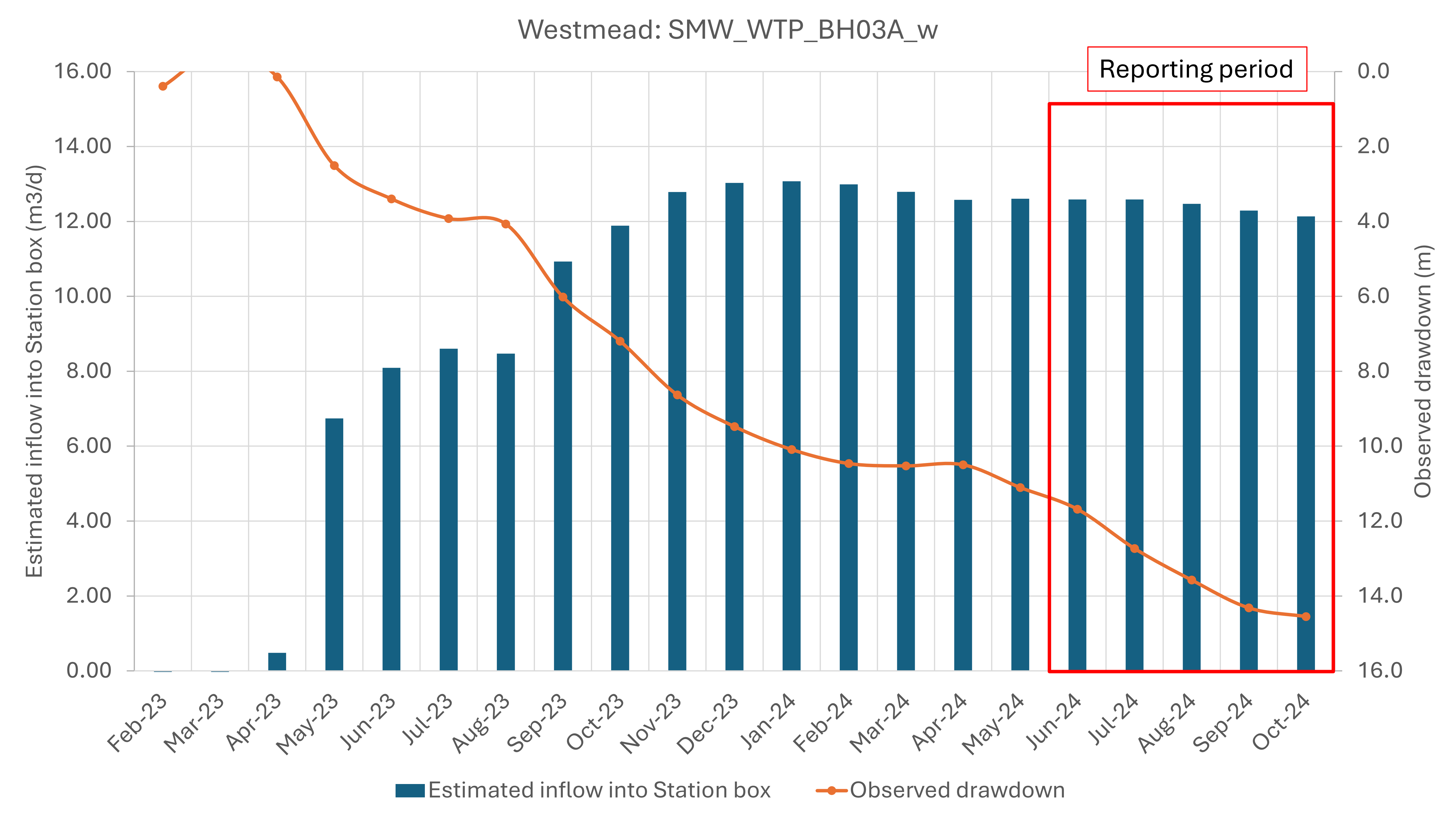
Clyde Dive: SMW_ENV039_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Estimated inflow into Station box
Observed drawdown

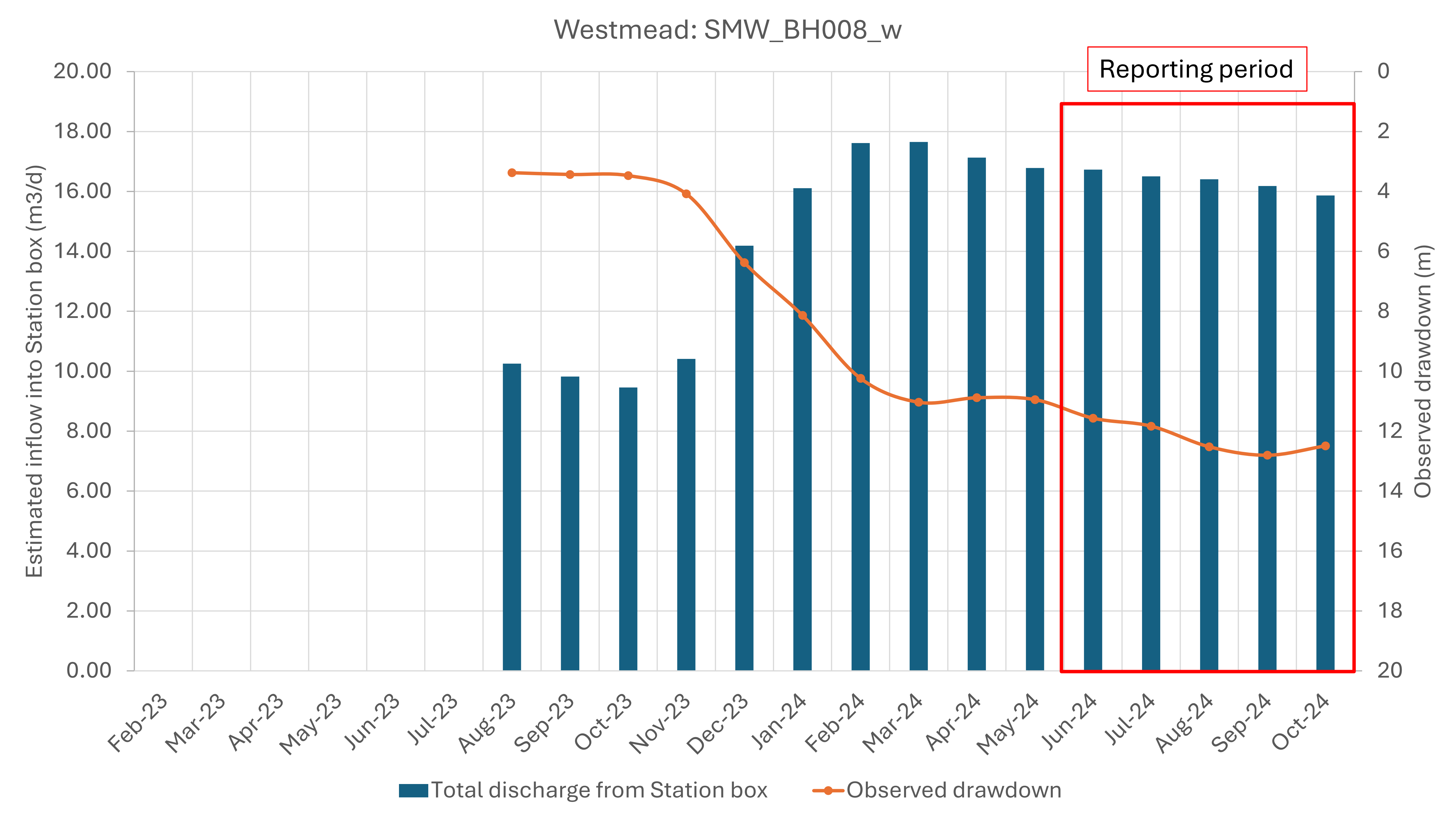

Clyde Dive: GALC_MW16_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0
1
2
3
4
5
6
7
8
9
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Estimated inflow into Station box
Observed drawdown



Parramatta: SMW_BH002_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
2.50
2.00
1.50
1.00
0.50
0.00
-0.5
-0.2
0.1
0.4
0.7
1
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Total discharge from Station box
Observed drawdown


Parramatta: SMW_BH004_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-0.6
-0.45
-0.3
-0.15
0
0.15
0.3
0.45
0.6
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Total discharge from Station box
Observed drawdown


Westmead: SMW_WTP_BH03A_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Estimated inflow into Station box
Observed drawdown


Westmead: SMW_BH008_w
Reporting period
Estimated inflow into Station box (m3/d)
Observed drawdown (m)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0
2
4
6
8
10
12
14
16
18
20
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Total discharge from Station box
Observed drawdown